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Weston & Sampson

FEB 15 2019

100 Foxborough Blvd., Suite 250, Foxborough, MA 02035
Tel: 508.698.3034

PLANNING BOARD
GRAFTON, MA

MEMORANDUM

TO: Mr. Kenneth C. Best AIA. ALA – Drumme, Rosane, Anderson Inc.

FROM: Jeffrey Santacruce, PE, PTOE - Project Manager

DATE: February 11, 2019

SUBJECT: Grafton Town Library Expansion – Traffic Study Requirements Waiver Request

As requested, Weston & Sampson has prepared this Memorandum regarding proposed waiver requests for specific sections of the traffic study requirements outlined in the *Grafton Zoning Bylaws Section 8 Traffic Control Subsection 8.2 Traffic Study Required* for the proposed Town of Grafton Library Expansion. As proposed, the existing 6,000 square foot library will be expanded and reconfigured to accommodate a new 26,000 square foot library with a new parking lot and driveways on the existing site on Upton Street (Route 140).

Traffic Study Requirements & Waiver Request

Per Section 8.2 "a traffic study shall be submitted with each application for a subdivision of greater than 20 units, special permit, special permit with site plan review, or where required by the Planning Board, unless waived by a four-fifths (4/5) vote of the SPGA".

This project will require a special permit and thus meets the above requirement, however, the information provided below will outline the low intensity of the existing use, even with the proposed expansion, and its impact on the adjacent roadway to support our request for a waiver from certain requirements of the traffic study requirements as follows:

- 1.) Section 8.2.3 - The need to analyze the AM peak hour (7:00-9:00AM)
- 2.) Section 8.2.4a - The use of Institute of Transportation Engineers (ITE) Trip Generation Data
- 3.) Section 8.2.3 - The need to analyze additional streets or intersections beyond the site driveway intersections with Upton Street (Route 140).

We are requesting that the SPGA vote to waive these three requirements.

Waiver Request 1, Section 8.2.3:

Existing Traffic Volumes

Base traffic conditions along Upton Street (Route 140) adjacent to the site were developed by conducted automatic traffic recorder (ATR) counts on January 30, 2019. In addition, manual turning movement counts (TMC) were collected at the site driveways during the weekday AM peak hour of the facility (10:00 AM - 12:00 PM) and the weekday PM peak hour (4:00 - 6:00PM) of the adjacent roadway. The TMC counts were also performed on January 30, 2019. The results of these counts are attached.

EXHIBIT 4

The AM peak of the facility was used since the library is not open during the peak hour of the adjacent street traffic (7:00 – 9:00 AM). A copy of the existing hours of operation as listed on the Library website is attached. The library is considering expanding the operating hours of the facility in the future as follows (subject to funding and Board approval):

Possible Future Library Hours

Mon-Thursday 9:00 am to 9:00 pm

Friday – Saturday 10:00 am to 6:00 pm.

Sundays – 1 pm – 5 pm (week after Labor Day to week before Memorial Day).

Since, even with these possible expanded hours, the library will not open during the AM peak hour of Section 8.2.3 traffic study requirements, this requirement should not apply to this project. This should be sufficient to satisfy the first waiver request, the need to perform an analysis during the AM Peak Hour (7:00 - 9:00 AM), because the facility in question is not open during these hours.

The existing daily and PM peak hour traffic volumes along Upton Street (Route 140) are summarized in Table 1 below.

Table 1. Existing Traffic Volume Summary

Location/Time Period	Daily Volume (vpd) ^a	Peak Hour Volume(vph) ^b	K Factor (%) ^c	Directional Distribution ^d
Upton Street (Route 140)				
Weekday				
PM Peak Hour	8675	730	8.4	55% WB

^avehicles per day

^bvehicles per hour

^cPercentage of daily traffic occurring during the peak hour/

^dWB=westbound

Waiver Request 2, Section 8.2.4a:

Trip Generation

Traffic to be generated by a proposed project is typically generated by rates provided in the Institute of Transportation Engineers *Trip Generation*¹ manual. This information is often supplemented or replaced by additional data available for similar facilities, or the existing facility in the case of an expansion project. In this case, this is an expansion project. Thus trip generation data for the existing facility was collected. Specifically, turning movement counts were conducted at the existing library driveways to determine site-specific trip generation rates. The results of the trip generation for the existing and proposed expansion are shown below in Table 2. Based on the trip generation rates developed for the existing library, the 20,000 square foot expansion will generate 80 new trips (47 in/33 out) during the library's AM peak hour, and 113 new trips (53 in/60 out) during the PM peak hour. **Since the library is existing and actual trip generation data has been collected, the requirement of Section 8.2.4a should be waived.**

¹ Trip Generation, Tenth Edition, Institute of Transportation Engineers, Washington, DC, 2018.

Table 2. Trip Generation

Location/Time Period	Existing Trips ^a	Empirical Trip Rate ^b	Proposed New Trips ^c	Proposed Total Trips ^d
Upton Street (Route 140)				
Weekday				
AM Peak Hour				
Entering	14	2.33	47	61
Exiting	10	1.67	33	43
Total	24	4.00	80	104
PM Peak Hour				
Entering	16	2.66	53	69
Exiting	18	3.00	60	78
Total	34	5.67	113	147

^abased on turning movement counts

^bbased on vehicles per 1000sf of library (6,000sf facility)

^c new trips to the area as a result of the proposed expansion (equals total trips minus existing trips)

^dbased on 26,000 sf proposed library expansion

Waiver Request 3, Section 8.2.3:

Trip Distribution

Section 8.2.4.h. indicates that analysis of the effect on capacity of those intersections likely to be affected by the development. Section 8.2.3 indicates that "likely to be affected" includes a roadway with an ADT of 2,000 or more and carries 10 percent or more of the development trips or at an intersection where the development traffic adds 5 percent or more volume to the approach.

The distribution of the proposed new site traffic on the area roadways and intersections is based on the existing travel patterns observed at the site driveway, population density within the town, and expected travel routes to and from the site. The trip distribution used for this project is shown in Table 3 below. Figure 1, attached, distributes the new site traffic summarized in Table 2 based on this trip distribution.

Table 3. Trip Distribution

Roadway	Direction To/From	Percent of New Trips
Upton Street (Route 140)	South	35
Worcester Street (Route 140)	North	30
South Street	South	5
Millbury Street	West	20
North Street	East	10

^avehicles per day

^bvehicles per hour

^cPercentage of daily traffic occurring during the peak hour/

^dWB=westbound

Within the study area Route 140 is a through roadway and it intersects with several local roadways. The site is located on Upton Street (Route 140) just south of the intersection of South Street. Based on the ATR that was performed the average daily traffic on this roadway is 8675 vehicles per day and approximately 730 vehicles during the PM peak hour as noted in Table 1. The majority of new site traffic will be oriented to and from the west along Route 140, 34 new trips will enter the site from this direction and 39 will exit toward this direction. The new site traffic along Route 140 in this location will be 10 percent of the existing eastbound, and 10 percent of the existing westbound traffic. East of the site driveway the new site traffic will be roughly 5 percent of the Route 140 PM peak hour traffic. **Therefore, it is agreed that the operations and safety of the site driveways on Upton Street should be studied.**

However, as you move away from the site, new site traffic is dispersed on area roadways and impacts, if any, are lessened. Study of intersections other than the site driveway should not be required as outlined below.

The guidelines within Section 8.2 indicate that if the project will add 5 percent or more traffic to an approach then the intersection should be studied. The guidelines, however, do not provide a clear definition of an intersection approach, particularly at an unsignalized intersection. Based on generally accepted engineering practice, approach to an intersection should be defined as one in which a vehicle is required to adhere to a specific traffic sign or signal regulation that affects their movement and causes delay (i.e. stop sign, yield sign, or traffic signal). At an unsignalized intersection, the critical movements are those that involve stopping vehicles, such as the side street STOP-sign controlled approaches or left turns from the major street. For example, at the intersection of Route 140 at South Street, the critical movements are the South Street approach and the Route 140 left turn onto South Street. The library expansion is anticipated to add only 3 trips turning right from South Street and 3 trips turning left from Route 140 to South Street during the PM peak hour. **This is a negligible traffic volume, thus analysis of the Route 140 at South Street intersection should not be required.**

Similar review of the Route 140 intersection with Millbury Street and North Street indicates that analysis of this intersection should not be required. The critical movements at this intersection are the Millbury Street eastbound approach to Route 140, the North Street westbound approach to Route 140, northbound left from Route 140 to Millbury Street, and the southbound left from Route 140 to North Street. The library expansion will add a negligible amount of new site traffic to these movements; 8 trips eastbound right on Millbury Street, 8 trips westbound left at North Street, and 9 trips left northbound on Route 140. MassDOT traffic data was also reviewed in order to test these movements for the "5 percent rule." Based on the data available on the MassDOT website, Millbury Street has a PM peak hour volume of 461 vehicles per hour (vph) and North Street has a PM peak hour volume of 558 vph. When compared to the new site traffic volumes, the "5 percent rule" is not met.

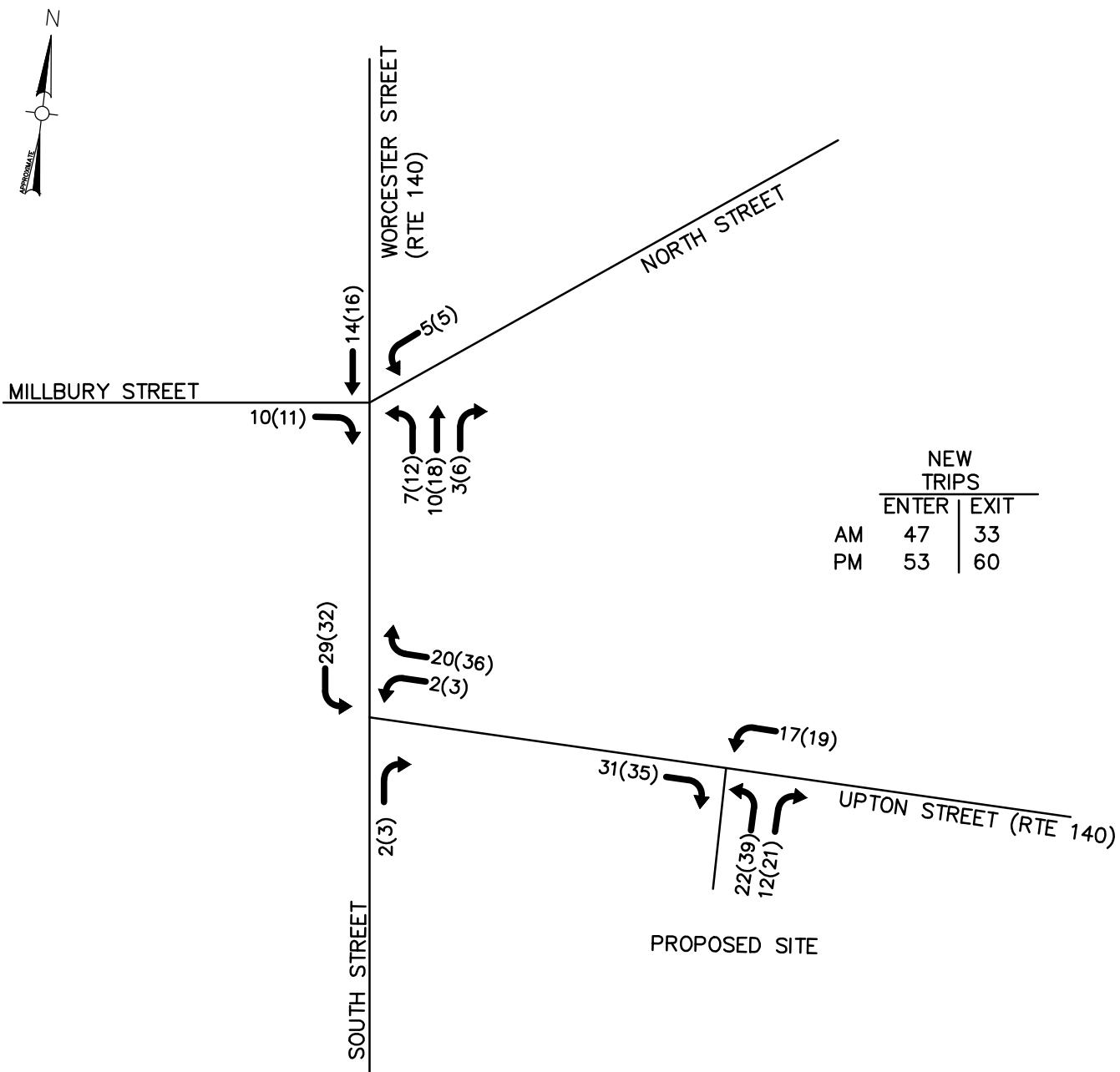
Conclusion

Based on the information provided above the waiver request should be granted for the following requirements:

- **Waiver Request 1, Section 8.2.3** – There is no need to analyze the AM peak hour (7:00 - 9:00 AM) since the library does not open until 10:00 AM. A copy of the hours of operation from the Library Website are attached for verification.

- **Waiver Request 2, Section 8.2.4.a** – The use of ITE's Trip Generation Data is not necessary since the library is an existing use and site traffic volumes were collected to determine the trip generation rate of the actual facility. Traffic counts are attached.
- **Waiver Request 3, Section 8.2.3** – The need to analyze additional streets or intersections beyond the site driveway intersections with Upton Street (Route 140) is not necessary. The new site traffic to be generated by the library expansion is negligible outside of the site driveway intersection and the “5 percent rule” is not met. Figure 1 summarizes the new site traffic volumes at the intersections nearby to the site.

ATTACHMENTS



SCALE: N.T.S.

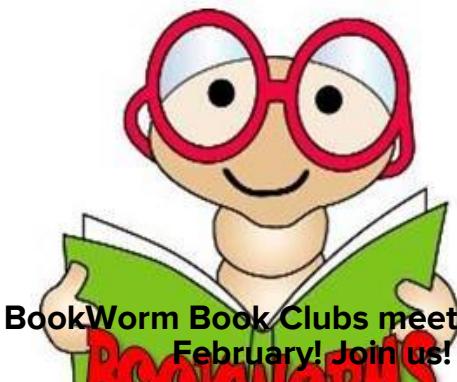
FIGURE 1
TRIP DISTRIBUTION
TOWN LIBRARY EXPANSION PROJECT
GRAFTON, MA

Weston & Sampsonsm

What we're reading



News and events



BookWorm Book Clubs meet again this February! Join us!

[Heartless](#)

LIBRARY UPDATES

Construction Update #2

The refinement of the floor plans was a focus for the architects and the Building Committee throughout the late fall ...

[read more](#) >

[Continue reading >](#)

Storytime at the Grafton Historical Society

Bringing stories to your neighborhood! Join us Wednesday, February 27 1:15-1:45 pm for a special storytime at the Grafton Historical Society's beautiful new South Grafton location.

[Continue reading >](#)

Teen Crafternoon: Dragon Eggs

That's correct, not a typo - Dragon Eggs! Curious? Join us Saturday, February 23 1:00-3:00 pm for this unusual project! All craft supplies will be provided. Dragon food will not.

[Continue reading >](#)

Confetti Soapmaking Workshop!

Tired of Winter? Try G.U.M and learn to play the Ukulele

Welcome to Grafton Ukulele Musicians (GUM), a partnership between Apple Tree Arts and Grafton Public Library. Learn how to strum some tropical music sounds Thursday, February 14 6:30 pm.

[Continue reading >](#)

Library Closed for President's Day February 18, 2019

The Grafton Public Library will be CLOSED for President's Day on Monday, February 18, 2019.

[Continue reading >](#)

Join us for one of the 20 minute sessions on Wednesday, February 20 and create a one of a kind confetti soap! This free program is open to adults, teens (grades 6-12) and kids (grades K-5).

[Continue reading >](#)

Kids in Grades 3-5! Come Explore at Saturday STEAM Ahead!

Roll up your sleeves and be prepared to say, "I didn't know that!" at Saturday STEAM Ahead on February 16 at 12:00 pm.

[Continue reading >](#)

Down Under No Longer Accepting Donations as of 12/31/18

To prepare for our spring move to temporary facilities, the Friends will no longer accept book and media donations as of December 31, 2018; donate to these places instead!

[Continue reading >](#)

Don't go without your Bedtime Stories!!

Throw on your fuzzy PJs, grab your fuzziest friend, and join us for PJ storytime Thursday, February 7 at 6:15 pm. Drop-in program, registration is not required.

[Continue reading >](#)

HOURS

Mon-Thu 10:00 a.m. - 9:00 p.m.
Fri-Sat 10:00 a.m. - 5:00 p.m.
Closed Sundays

GET IN TOUCH

Email:[Email us at info@graftonlibrary.org](mailto:info@graftonlibrary.org)
Phone:Call us at 508-839-4649

VISIT US

35 Grafton Common
Grafton, MA 01519
[Get directions](#)

Share a suggestion

JOIN THE FRIENDS!

Become a Member

Sign Up for the Friends'
Newsletter

SIGN UP FOR THE LIBRARY'S **GENERAL, TEEN OR FRIENDS' ENEWSLETTER!**

[Sign Up all Library News](#)

For Email Newsletters you can trust.

[Sign Up for Teen News](#)

For Email Newsletters you can trust.

Sign Up for the Friends'
Newsletter

NEW MATERIALS

Reserve New Items

massDOT Transportation Data Management System

Location ID: 246787
Location Name: On NHS
Type: On NHS
LRS ID: L2738.NB
SF Group: 14-7
AF Group: 14-7
GF Group: 14-7
Class 1/2 Grp: 14-7
 Seas Class Grp: H/C+1/2/Streetwide
WIM Group: 14-7
QC Group: Default
Fleet Class: Major Collector
Located On: MILLBURY STREET
Loc On Alis: EAST OF ROUTE 122
EAST OF ROUTE 122

STATION DATA

Directions: 2-WAY EB WB

ADT	Year	ADT	DHV:20	%	D %	PA	BC	Src
2,200	2005	1,900	481	401	61	4,208 (44%)	262 (3%)	

Travel Demand Model

Model	Model	Year	ADT	AAM PM	AAM AM	MID PM	MID AM	PA PM	PA AM	NA PM	NA AM
2017	2017	2017	1,981	15	4,884	15	5,019	15	3,090	15	2,858

VOLUME COUNT

Date	Total	Int	BBth
Tue 7/18/2017	15	4,884	15
Mon 7/17/2017	15	4,881	15
Tue 8/8/2011	15	3,090	15
Mon 8/7/2011	15	3,090	15

CLASSIFICATION

Speed	Date	Int	BBth	Total	Int	Total
60	Tue 7/18/2017	15	45	43	15	4,884
60	Mon 7/17/2017	15	45	45	15	4,881
60	Tue 8/8/2011	15	55	57	15	3,090
60	Mon 8/7/2011	15	55	57	15	3,090

PER VEHICLE

Date	Axis	Avg GWW	Total	Date	Axis	85th	Total	No Daa
GAP	No Daa	Date	Int	Total				

WEIGH-IN-MOTION

Date	Axis	No Daa	Date	Axis	Total
GAP	No Daa	Date	Int	Total	

<https://mhd.m2soft.com/tcds/search.asp?Loc=mhd&Mod=2>

Transportation Data Manager...  

File Edit View Favorites Tools Help

Page Safety Tools      

MS2 Transportation Data Management System      

Home         

Login  

Locate All 

Location  

Report Center 

Loc View  

Loc Record         

Record         

Location ID: RP405-110-1538         

Location ID: RP405-110-1538         

Location ID: RP405-110-1538         

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Location ID: RP405-110-1538         

Location ID: RP405-110-1538         

Location ID: RP405-110-1538

Location ID: RP405-110-1538 <img alt="Address icon" data-bbox="248 1530 263

Accurate Counts
978-664-2565

978-664-2565

N/S Street : Library East Driveway
E/W Street: Upton Street
City/State : Grafton, MA
Weather : Clear

File Name : 18120001
Site Code : 18120001
Start Date : 1/30/2019
Page No : 1

		Groups Printed- Cars - Trucks							
		Upton St From East			East Drwy From South			Upton St From West	
Start Time	Left	Left	Thru	Left	Right	Left	Right	Thru	Right
10:00 AM	0	62	0	0	0	0	0	57	0
10:15 AM	0	63	0	0	0	0	0	50	0
10:30 AM	0	64	0	0	0	0	0	46	0
10:45 AM	0	53	0	0	0	0	0	54	0
Total	0	242	0	0	0	0	0	207	0
11:00 AM	0	40	0	0	0	0	0	48	0
11:15 AM	0	58	0	0	0	0	0	60	1
11:30 AM	0	52	0	0	0	0	0	46	0
11:45 AM	0	46	0	0	0	0	0	50	0
Total	0	196	0	0	0	0	0	204	1
Grand Total	0	438	0	0	0	0	0	411	1
Apprch %	0	100	0	0	0	0	0	99.8	0.2
Total %	0	51.5	0	0	0	0	0	48.4	0.1
Cars	0	427	0	0	0	0	0	400	1
% Cars	0	97.5	0	0	0	0	0	97.3	100
Trucks	0	11	0	0	0	0	0	11	0
% Trucks	0	2.5	0	0	0	0	0	2.7	0

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 2

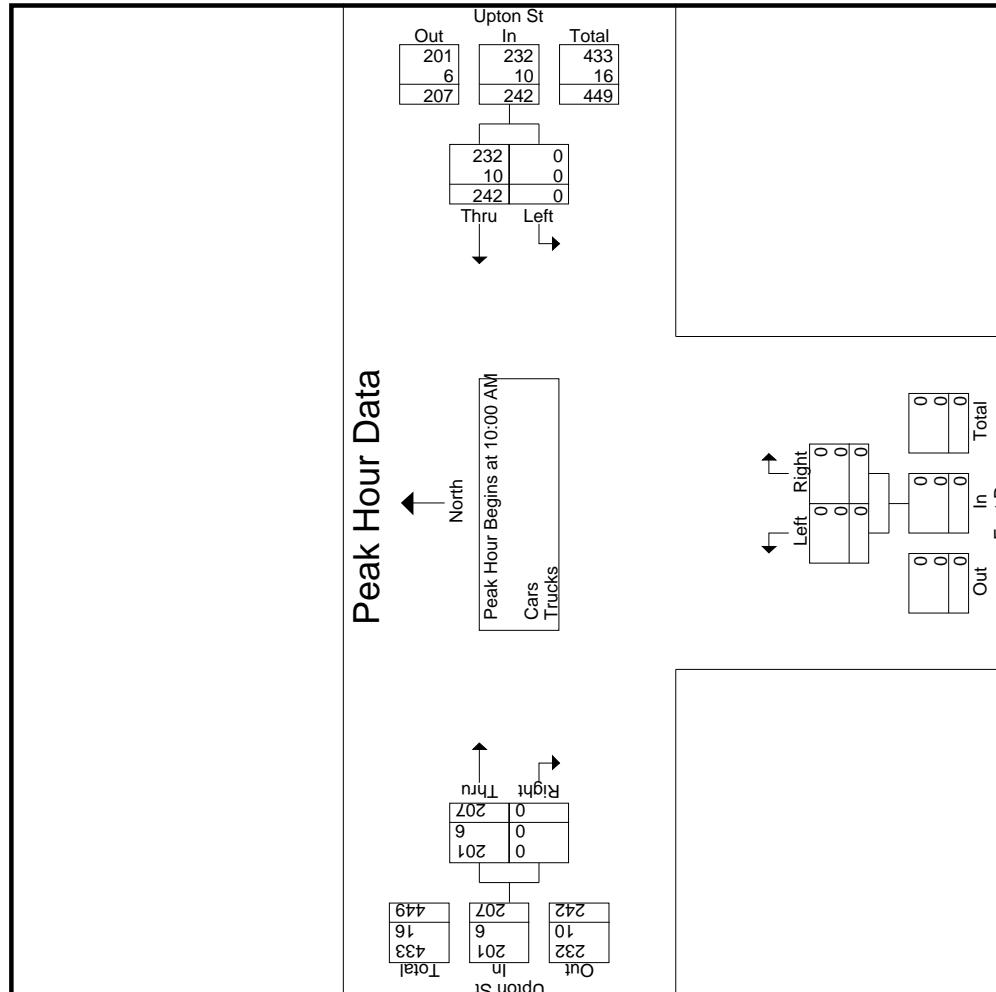
		Upton St			East Drwy			Upton St		
		From East			From South			From West		
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 10:00 AM										
10:00 AM	0	62	62	62	0	0	0	57	0	119
10:15 AM	0	63	63	63	0	0	0	50	0	113
10:30 AM	0	64	64	64	0	0	0	46	0	110
10:45 AM	0	53	53	53	0	0	0	54	0	107
Total Volume	0	242	242	0	0	0	0	207	0	449
% App. Total	0	100	100	0	0	0	100	0	0	207
PHF	.000	.945	.945	.000	.000	.000	.908	.000	.908	.943
Cars	0	232	232	0	0	0	201	0	201	433
% Cars	0	95.9	95.9	0	0	0	97.1	0	97.1	96.4
Trucks	0	10	10	0	0	0	6	0	6	16
% Trucks	0	4.1	4.1	0	0	0	2.9	0	2.9	3.6

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 3



Peak Hour Analysis From 10:00 AM to 11:45 AM - Peak 1 of 1

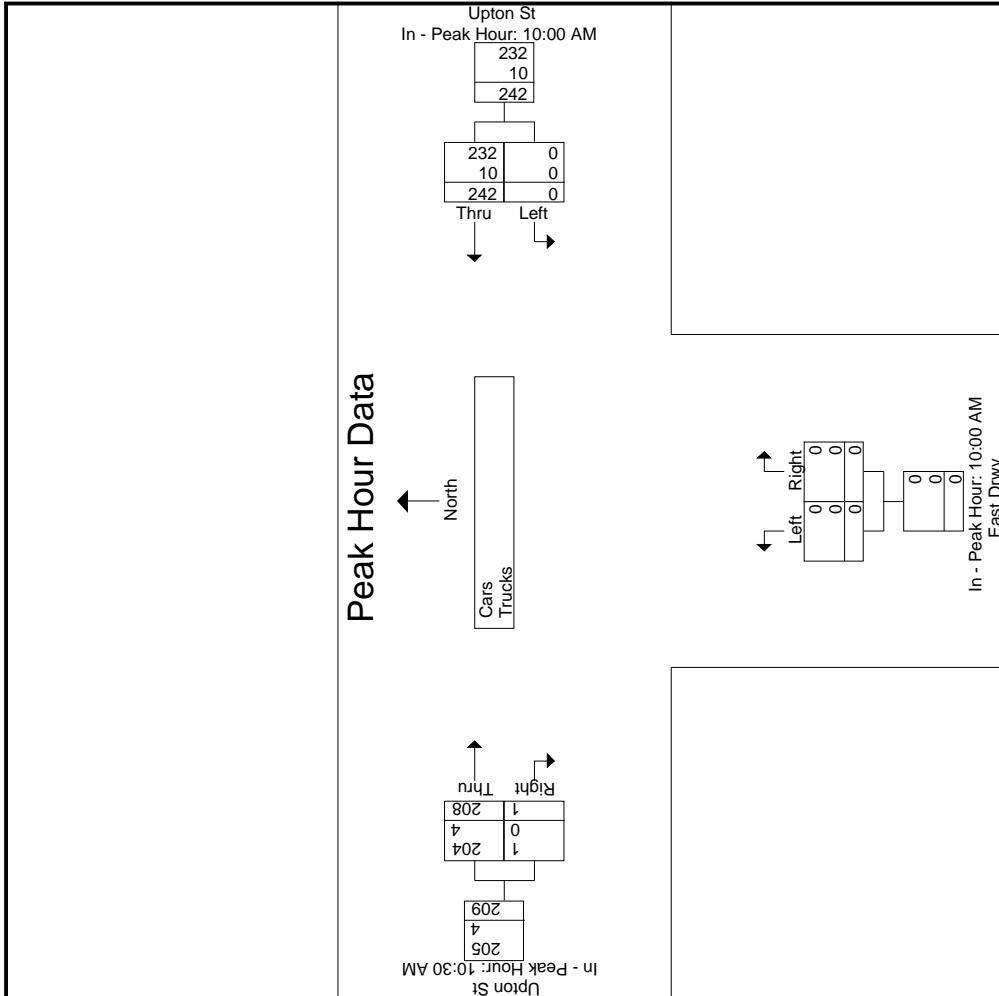
Peak Hour for Each Approach Begins at:

	10:00 AM	10:00 AM	10:30 AM	10:30 AM	10:30 AM	10:30 AM
+0 mins.	0	62	62	0	0	46
+15 mins.	0	63	63	0	0	54
+30 mins.	0	64	64	0	0	48
+45 mins.	0	53	53	0	0	60
Total Volume	0	242	242	0	0	208
						1
						1
						209
						61

Accurate Counts

978-664-2565

	% App. Total	0	100	.945	.945	0	0	.000	.000	.000	0.5
PHF		.000									.857
Cars	0	232	232			0	0			205	
% Cars	0	95.9	95.9			0	0			98.1	
Trucks	0	10	10			0	0			4	
% Trucks	0	4.1	4.1			0	0			1.9	



Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 5

	Upton St From East			Groups Printed-Cars East Drwy From South			Upton St From West			Int. Total
	Start Time	Left	Thru	Left	Right	Thru	Right	Thru	Right	
10:00 AM	0	58	0	0	0	0	56	0	0	114
10:15 AM	0	60	0	0	0	0	47	0	0	107
10:30 AM	0	62	0	0	0	0	45	0	0	107
10:45 AM	0	52	0	0	0	0	53	0	0	105
Total	0	232	0	0	0	0	201	0	0	433
11:00 AM	0	40	0	0	0	0	48	0	0	88
11:15 AM	0	58	0	0	0	0	58	1	1	117
11:30 AM	0	51	0	0	0	0	45	0	0	96
11:45 AM	0	46	0	0	0	0	48	0	0	94
Total	0	195	0	0	0	0	199	1	1	395
Grand Total	0	427	0	0	0	0	400	1	1	828
Apprch %	0	100	0	0	0	0	99.8	0.2	0.2	
Total %	0	51.6	0	0	0	0	48.3	0.1	0.1	

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 6

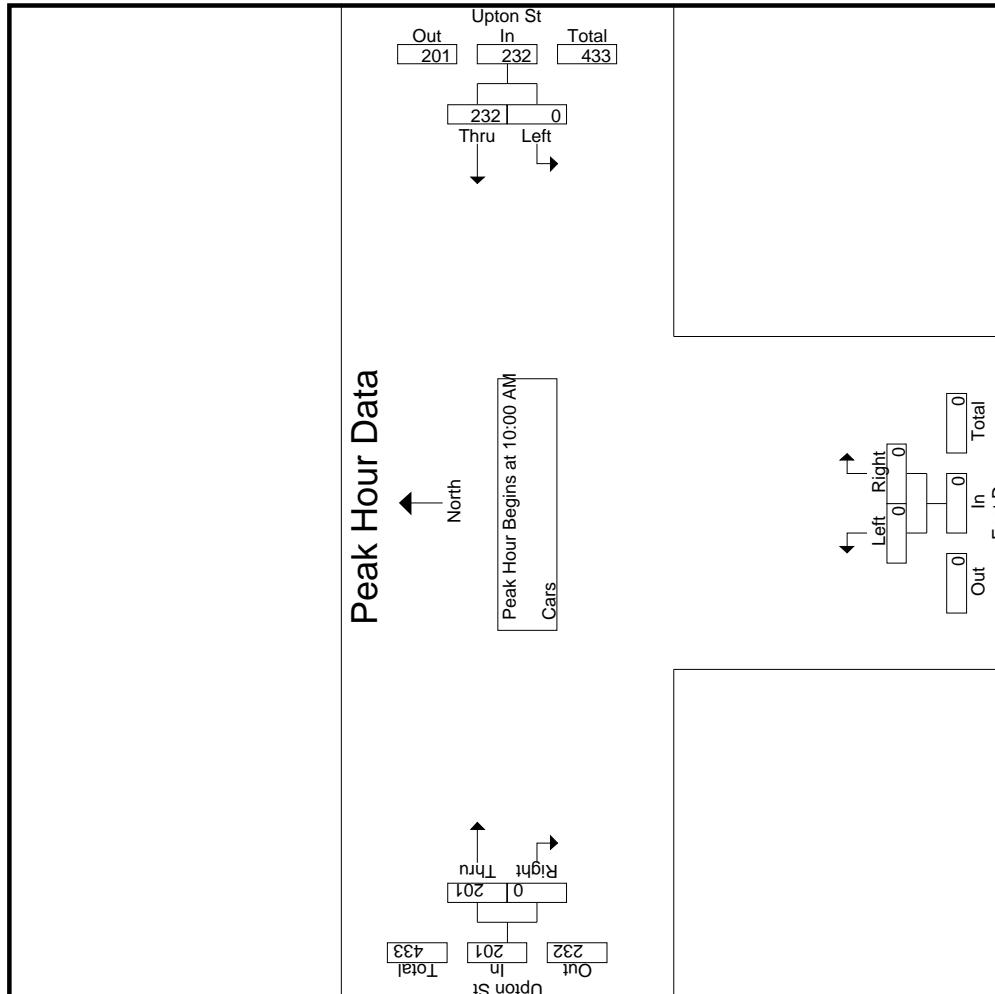
		Upton St			East Drwy			Upton St		
		From East			From South			From West		
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 10:00 AM										
10:00 AM	0	58	58	0	0	0	56	0	56	114
10:15 AM	0	60	60	0	0	0	47	0	47	107
10:30 AM	0	62	62	0	0	0	45	0	45	107
10:45 AM	0	52	52	0	0	0	53	0	53	105
Total Volume	0	232	232	0	0	0	201	0	201	433
% App. Total	0	100	100	0	0	0	100	0	100	
PHF	.000	.935	.935	.000	.000	.000	.897	.000	.897	.950

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 7



Peak Hour Analysis From 10:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

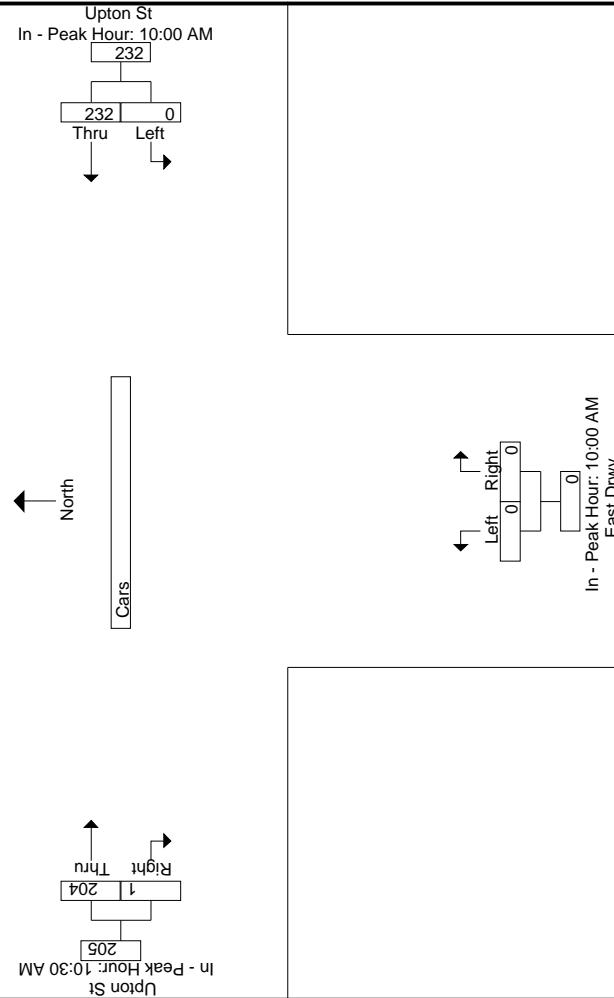
	10:00 AM	10:00 AM	10:30 AM	10:30 AM	10:30 AM
+0 mins.	0	58	58	0	45
+15 mins.	0	60	60	0	53
+30 mins.	0	62	62	0	48
+45 mins.	0	52	52	0	59
Total Volume	0	232	232	0	204
					1
					1
					205

Accurate Counts

978-664-2565

	% App. Total	0	100	.935	.935	0	99.5	.879	.250	.869
PHF	.000									

Peak Hour Data



Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 9

Start Time	Upton St From East			Groups Printed-Trucks			Upton St From West			Int. Total
	Left		Thru	East Drwy From South		Right	Thru		Right	
	Left	Thru	Left	From South	Right	Thru	Thru	Right	Right	
10:00 AM	0	4	0	0	0	0	1	0	0	5
10:15 AM	0	3	0	0	0	0	3	0	0	6
10:30 AM	0	2	0	0	0	0	1	0	0	3
10:45 AM	0	1	0	0	0	0	1	0	0	2
Total	0	10	0	0	0	0	6	0	0	16
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	2	0	0	2
11:30 AM	0	1	0	0	0	0	1	0	0	2
11:45 AM	0	0	0	0	0	0	2	0	0	2
Total	0	1	0	0	0	0	5	0	0	6
Grand Total	0	11	0	0	0	0	11	0	0	22
Apprch %	0	100	0	0	0	0	100	0	0	0
Total %	0	50	0	0	0	0	50	0	0	0

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 10

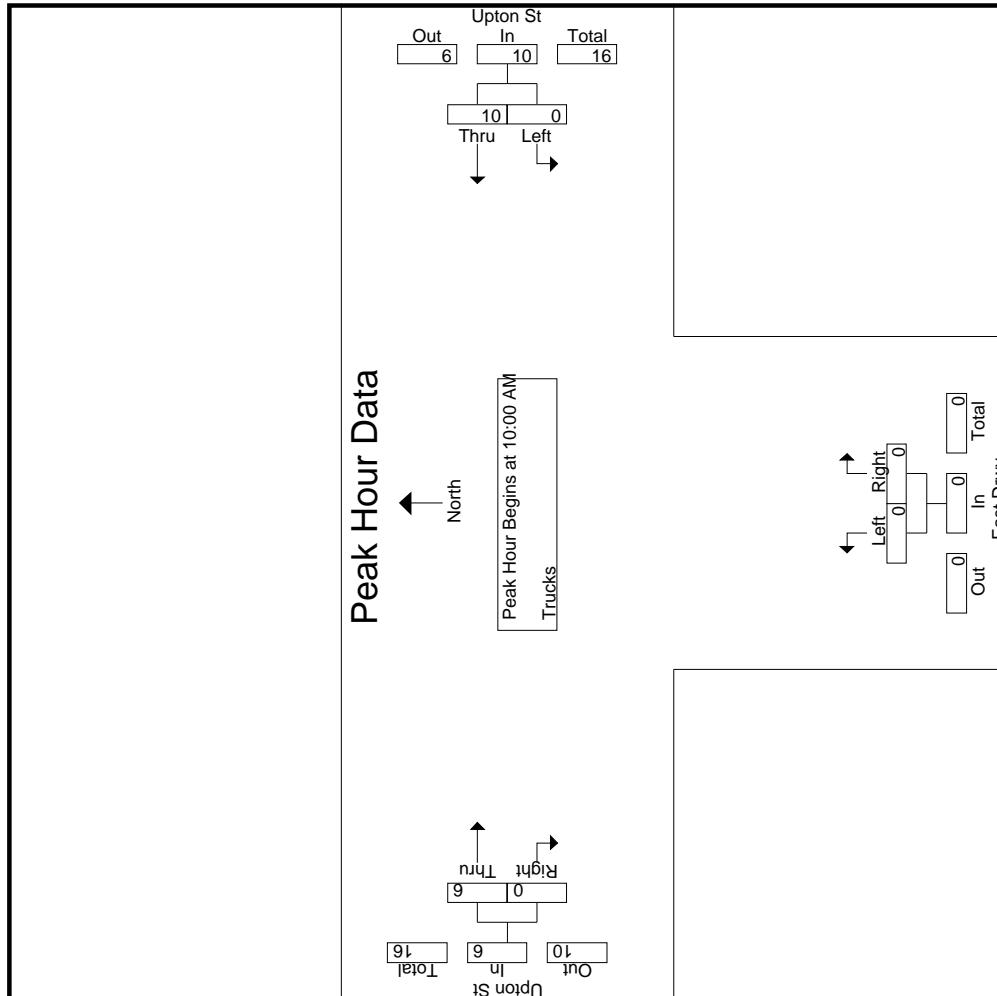
		Upton St			East Drwy			Upton St		
		From East			From South			From West		
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 10:00 AM										
10:00 AM	0	4	4	0	0	0	1	0	1	5
10:15 AM	0	3	3	0	0	0	3	0	3	6
10:30 AM	0	2	2	0	0	0	1	0	1	3
10:45 AM	0	1	1	0	0	0	1	0	1	2
Total Volume	0	10	10	0	0	0	6	0	6	16
% App. Total	0	100	100	0	0	0	100	0	0	
PHF	.000	.625	.625	.000	.000	.000	.500	.000	.500	.667

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 11



Peak Hour Analysis From 10:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

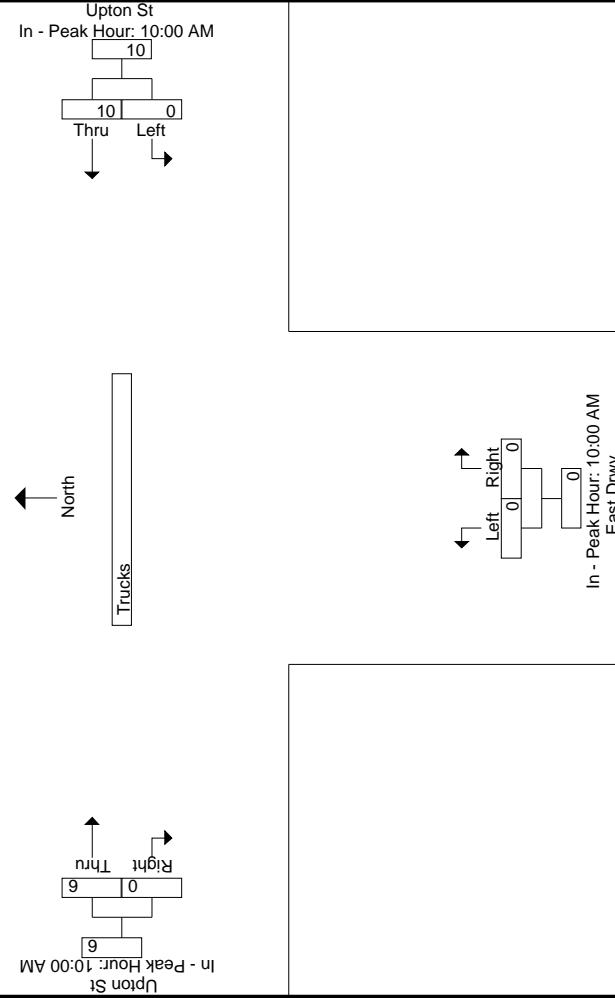
	10:00 AM	10:00 AM	10:00 AM	10:00 AM
+0 mins.	0	4	0	0
+15 mins.	0	3	0	0
+30 mins.	0	2	0	0
+45 mins.	0	1	0	0
Total Volume	0	10	0	0
		10	6	0

Accurate Counts

978-664-2565

	% App. Total	0	100	.625	.000	.000	.000	.500	0
PHF	.000			.625					

Peak Hour Data



Accurate Counts
978-664-2565

978-664-2565

N/S Street : Library East Driveway
E/W Street: Upton Street
City/State : Grafton, MA
Weather : Clear

File Name : 18120001
Site Code : 18120001
Start Date : 1/30/2019
Page No : 13

Accurate Counts
978-664-2565

978-664-2565

N/S Street : Library East Driveway
E/W Street: Upton Street
City/State : Grafton, MA
Weather : Clear

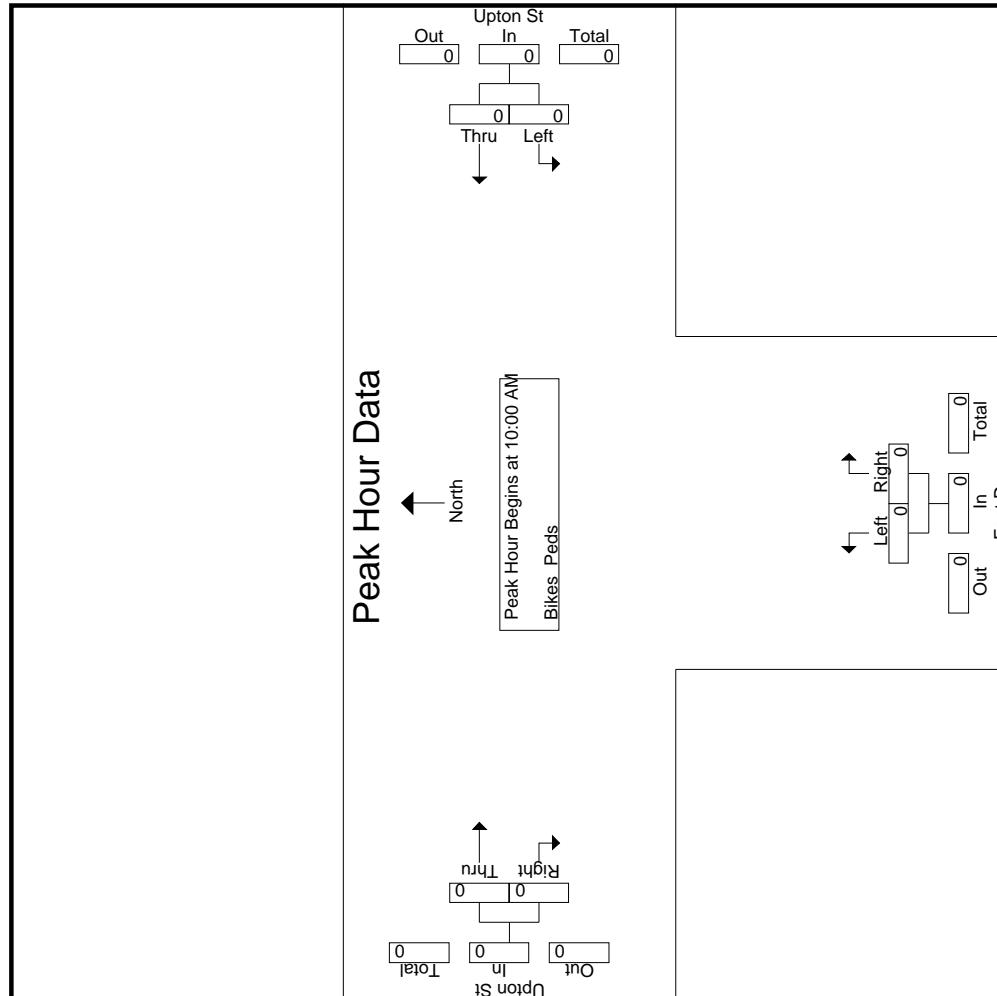
File Name : 18120001
Site Code : 18120001
Start Date : 1/30/2019
Page No : 14

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 15



Peak Hour Analysis From 10:00 AM to 11:45 AM - Peak 1 of 1

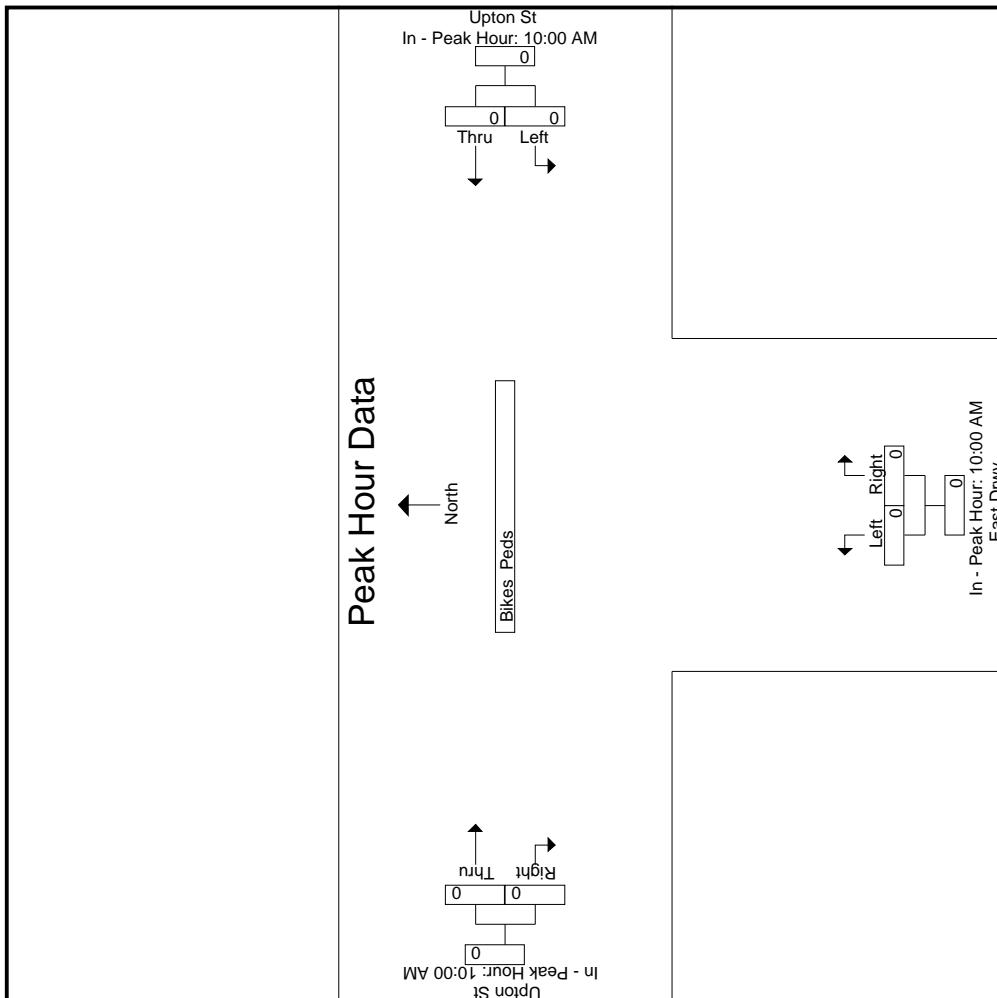
Peak Hour for Each Approach Begins at:

	10:00 AM	10:00 AM	10:00 AM	10:00 AM
+0 mins.	0	0	0	0
+15 mins.	0	0	0	0
+30 mins.	0	0	0	0
+45 mins.	0	0	0	0
Total Volume	0	0	0	0

Accurate Counts

978-664-2565

% App. Total	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000



Accurate Counts
978-6664-2565

978-664-2565

N/S Street : Library East Driveway
E/W Street: Upton Street
City/State : Grafton, MA
Weather : Clear

File Name : 18120001
Site Code : 18120001
Start Date : 1/30/2019
Page No. : 1

		Upton St From East			Groups Printed- Cars - Trucks			Upton St From West		
		Start Time	Left	Thru	East Dwy From South	Left	Right	Thru	Right	Right
	Start Time	Left	Left	Left	Left	Left	Left	Left	Left	Left
	03:00 PM	0	90	0	0	0	0	90	0	0
	03:15 PM	0	100	0	0	0	0	67	0	0
	03:30 PM	0	83	0	0	0	0	91	0	0
	03:45 PM	0	89	0	0	0	0	91	0	0
	Total	0	362	0	0	0	0	339	0	0
	04:00 PM	0	86	0	0	0	0	81	0	0
	04:15 PM	0	76	0	0	0	0	87	0	0
	04:30 PM	2	90	0	1	1	1	85	0	0
	04:45 PM	0	96	0	0	0	0	69	1	1
	Total	2	348	0	1	1	1	322	1	1
	05:00 PM	0	72	1	0	0	0	78	0	0
	05:15 PM	0	92	0	0	0	0	85	0	0
	05:30 PM	0	88	1	0	0	0	87	0	0
	05:45 PM	0	93	0	0	0	0	73	0	0
	Total	0	345	2	0	0	0	323	0	0
	06:00 PM	0	72	0	0	0	0	66	0	0

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 2

	Groups Printed- Cars - Trucks						Upton St From West			Int. Total
	Upton St From East		East Drwy From South		Right		Thru	Right		
Start Time	Left	Thru	Left	Right						
06:15 PM	0	72	0	0			54		1	127
06:30 PM	0	42	1	0			51		0	94
06:45 PM	0	55	1	0			48		1	105
Total	0	241	2	0			219		2	464
Grand Total	2	1296	4	1			1203		3	2509
Apprich %	0.2	99.8	80	20			99.8		0.2	
Total %	0.1	51.7	0.2	0			47.9		0.1	
Cars	2	1274	4	1			1190		3	2474
% Cars	100	98.3	100	100			98.9		100	98.6
Trucks	0	22	0	0			13		0	35
% Trucks	0	1.7	0	0			1.1		0	1.4

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 3

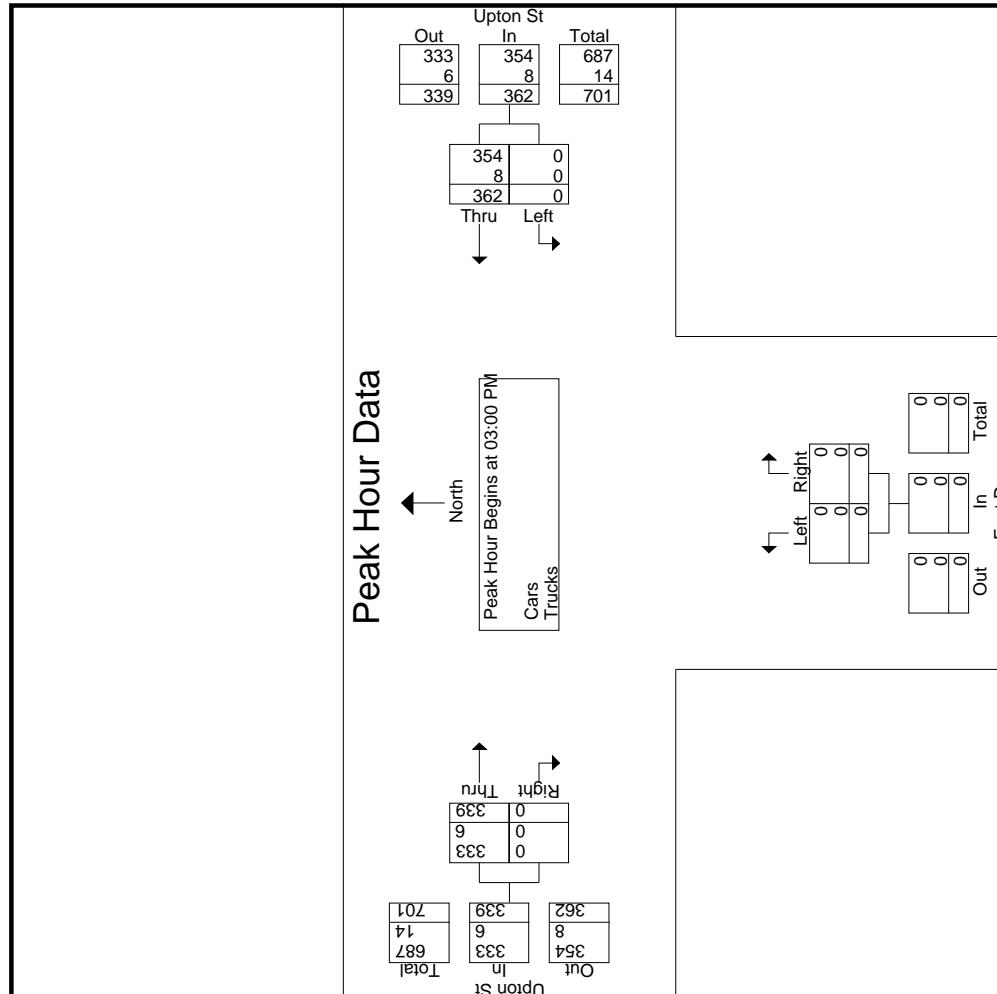
	Upton St From East			East Drwy From South			Upton St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thu	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	0	90	90	90	0	0	0	90	0	90
03:15 PM	0	100	100	100	0	0	0	67	0	67
03:30 PM	0	83	83	83	0	0	0	91	0	91
03:45 PM	0	89	89	89	0	0	0	91	0	91
Total Volume	0	362	362	0	0	0	0	339	0	339
% App. Total	0	100	100	0	0	0	100	0	0	100
PHF	.000	.905	.905	.000	.000	.000	.931	.000	.931	.974
Cars	0	354	354	0	0	0	333	0	333	687
% Cars	0	97.8	97.8	0	0	0	98.2	0	98.2	98.0
Trucks	0	8	8	0	0	0	6	0	6	14
% Trucks	0	2.2	2.2	0	0	0	1.8	0	1.8	2.0

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 4



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM	04:15 PM	03:30 PM
+0 mins.	0	90	0
+15 mins.	0	100	91
+30 mins.	0	83	91
+45 mins.	0	89	0
Total Volume	0	362	350

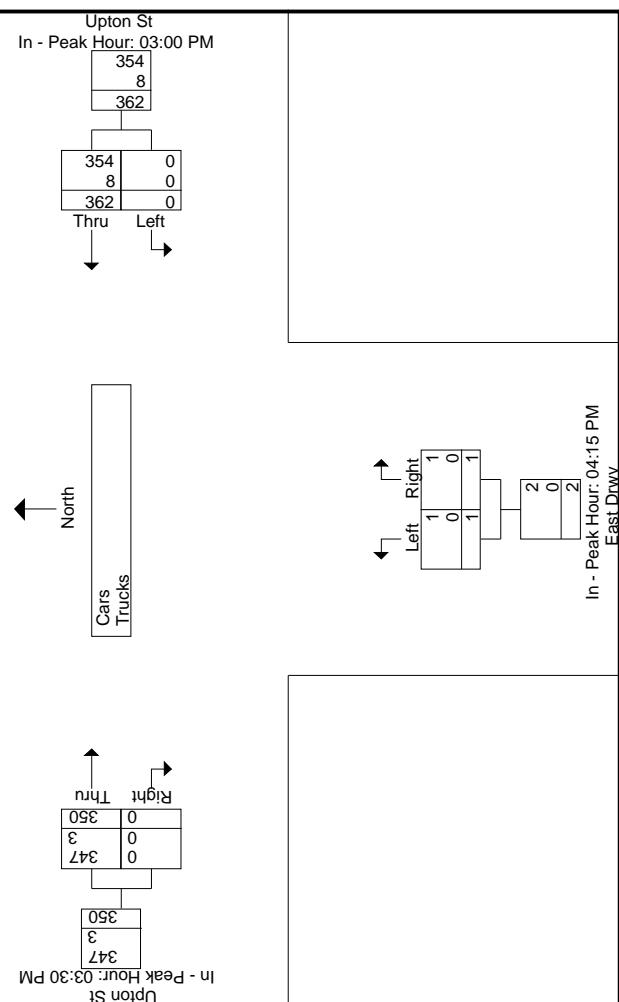
91
91
81
87
350

Accurate Counts

978-664-2565

	% App. Total	0	100	.905	.905	50	.250	.250	.500	100	0	.962	.962
PHF		.000											
Cars	0	354											
% Cars	0	97.8											
Trucks	0	8											
% Trucks	0	2.2											

Peak Hour Data



Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 6

	Start Time	Upton St From East		Groups Printed-Cars		Upton St From West		Int. Total
		Left	Thru	East Drwy From South	Right	Thru	Right	
	03:00 PM	0	88	0	0	87	0	175
	03:15 PM	0	98	0	0	67	0	165
	03:30 PM	0	82	0	0	89	0	171
	03:45 PM	0	86	0	0	90	0	176
	Total	0	354	0	0	333	0	687
	04:00 PM	0	82	0	0	81	0	163
	04:15 PM	0	76	0	0	87	0	163
	04:30 PM	2	90	0	1	85	0	178
	04:45 PM	0	94	0	0	69	1	164
	Total	2	342	0	1	322	1	668
	05:00 PM	0	72	1	0	78	0	151
	05:15 PM	0	92	0	0	82	0	174
	05:30 PM	0	88	1	0	86	0	175
	05:45 PM	0	92	0	0	73	0	165
	Total	0	344	2	0	319	0	665
	06:00 PM	0	66	0	0	65	0	131
	06:15 PM	0	72	0	0	53	1	126

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 7

		Upton St From East				Groups Printed-Cars East Drwy From South				Upton St From West					
		Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
	06:30 PM	0	41	1	0			0	51	0	0			0	93
	06:45 PM	0	55	1	0			0	47	1	1			1	104
	Total	0	234	2	0			0	216	2	2			2	454
		Grand Total	2	1274	4			1	1190					3	2474
		Apprich %	0.2	99.8	80			20	99.7					0.3	
		Total %	0.1	51.5	0.2			0	48.1					0.1	

Accurate Counts
978-664-2565

978-664-2565

N/S Street : Library East Driveway
E/W Street: Upton Street
City/State : Grafton, MA
Weather : Clear

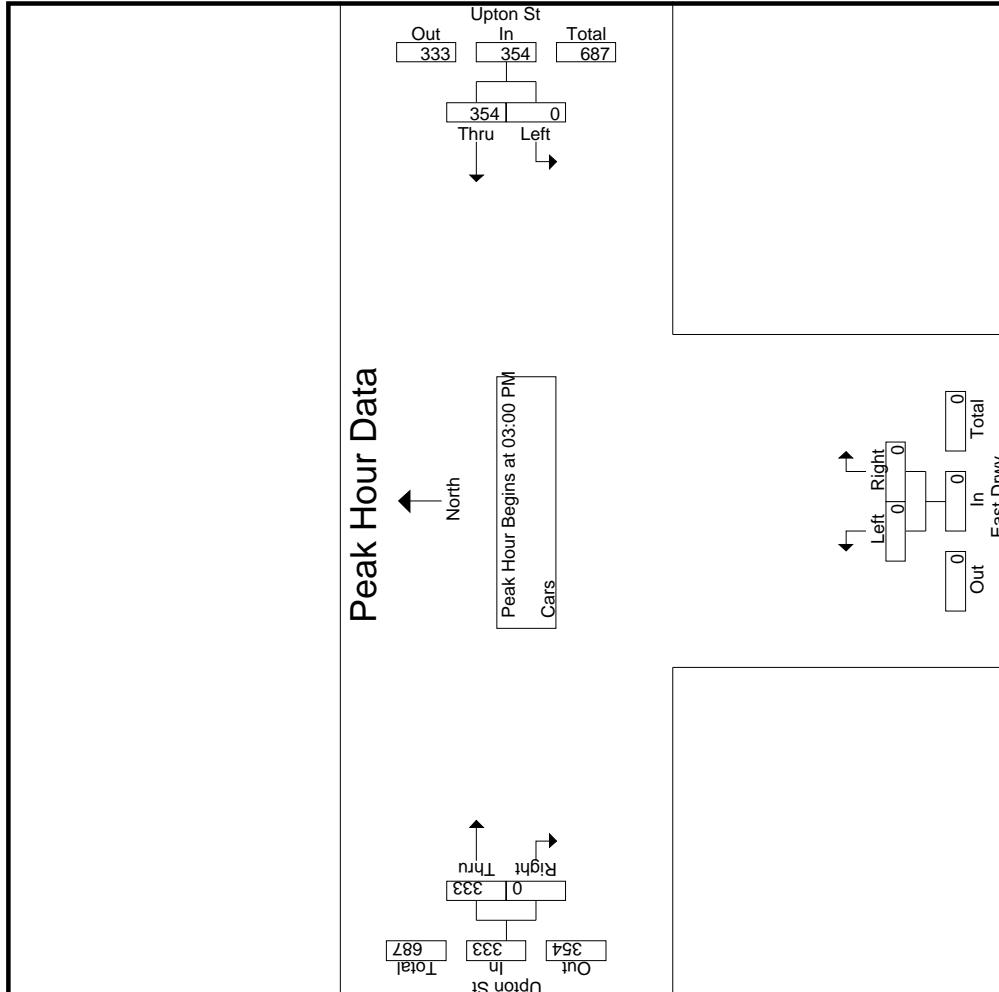
File Name : 18120001
Site Code : 18120001
Start Date : 1/30/2019
Page No : 8

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
E/W Street: Upton Street
City/State : Grafton, MA
Weather : Clear

File Name : 18120001
Site Code : 18120001
Start Date : 1/30/2019
Page No : 9



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

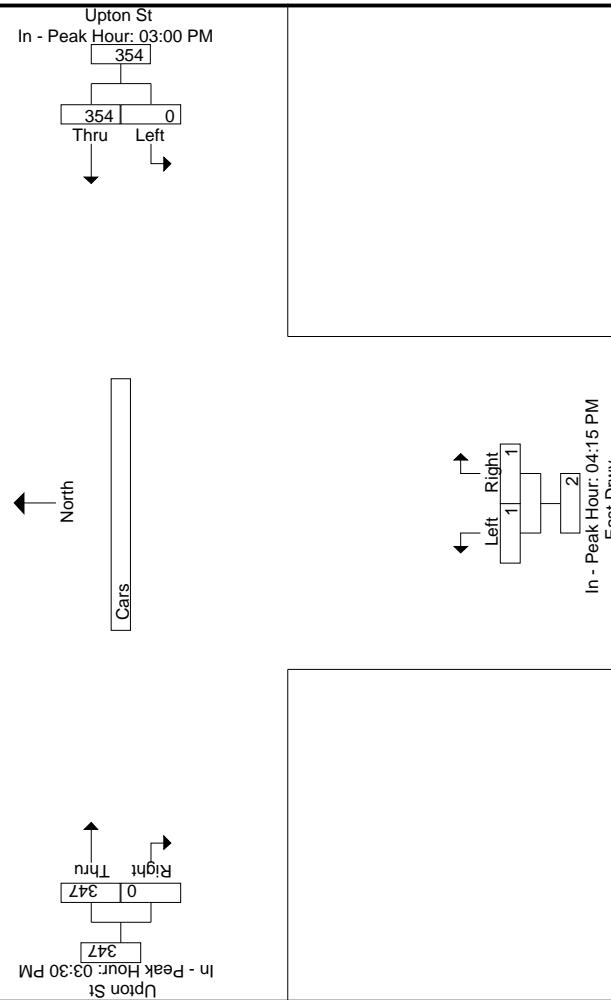
	03:00 PM	04:15 PM	03:30 PM
+0 mins.	0	88	89
+15 mins.	0	98	90
+30 mins.	0	82	81
+45 mins.	0	86	87
Total Volume	0	354	347

Accurate Counts

978-664-2565

	% App. Total	0	100	.903	.903	.250	.500	.964	0
PHF	.000								.964

Peak Hour Data



Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 11

	Start Time	Upton St From East		Groups Printed-Trucks			Upton St From West		Int. Total
		Left	Thru	East Drwy From South	Right	Thru	Right	Right	
	03:00 PM	0	2	0	0	0	3	0	5
	03:15 PM	0	2	0	0	0	0	0	2
	03:30 PM	0	1	0	0	0	2	0	3
	03:45 PM	0	3	0	0	0	1	0	4
	Total	0	8	0	0	0	6	0	14
	04:00 PM	0	4	0	0	0	0	0	4
	04:15 PM	0	0	0	0	0	0	0	0
	04:30 PM	0	0	0	0	0	0	0	0
	04:45 PM	0	2	0	0	0	0	0	2
	Total	0	6	0	0	0	0	0	6
	05:00 PM	0	0	0	0	0	0	0	0
	05:15 PM	0	0	0	0	0	3	0	3
	05:30 PM	0	0	0	0	0	1	0	1
	05:45 PM	0	1	0	0	0	0	0	1
	Total	0	1	0	0	0	4	0	5
	06:00 PM	0	6	0	0	0	1	0	7
	06:15 PM	0	0	0	0	0	1	0	1

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 12

		Upton St From East			Groups Printed-Trucks			Upton St From West				
		Left	Thru		Left	Right		Thru	Right		Int. Total	
Start Time												
06:30 PM	0	1	0		0	0		0	0		0	1
06:45 PM	0	0	0		0	0		1	0		0	1
Total	0	7	0		0	0		3	0		0	10
Grand Total	0	22	0		0	13		0	13		0	35
Apprich %	0	100	0		0	100		0	100		0	
Total %	0	62.9	0		0	37.1		0	37.1		0	

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 13

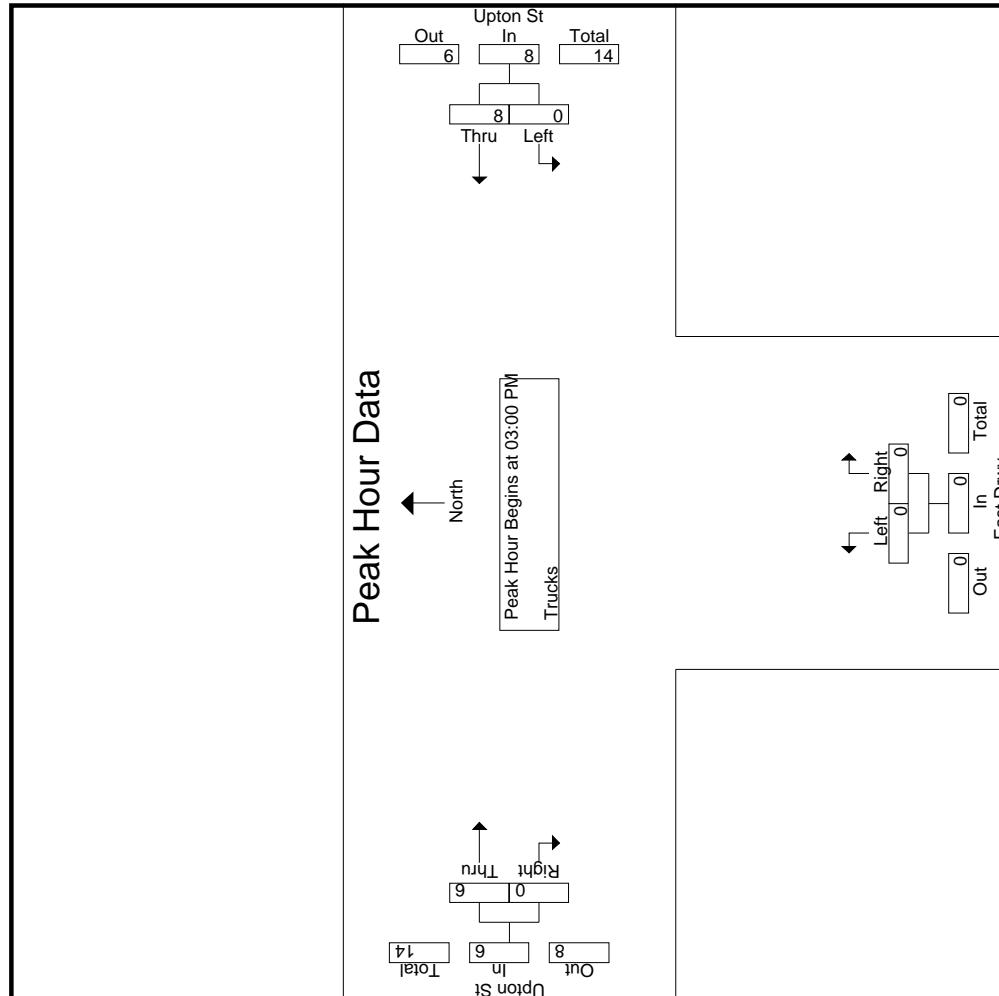
		Upton St From East			East Drwy From South			Upton St From West		
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thu	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	0	2	2	0	0	0	3	0	3	5
03:15 PM	0	2	2	0	0	0	0	0	0	2
03:30 PM	0	1	1	0	0	0	2	0	2	3
03:45 PM	0	3	3	0	0	0	1	0	1	4
Total Volume	0	8	8	0	0	0	6	0	6	14
% App. Total	0	100	0	0	0	100	0	0	0	100
PHF	.000	.667	.667	.000	.000	.000	.500	.000	.500	.700

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 14



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

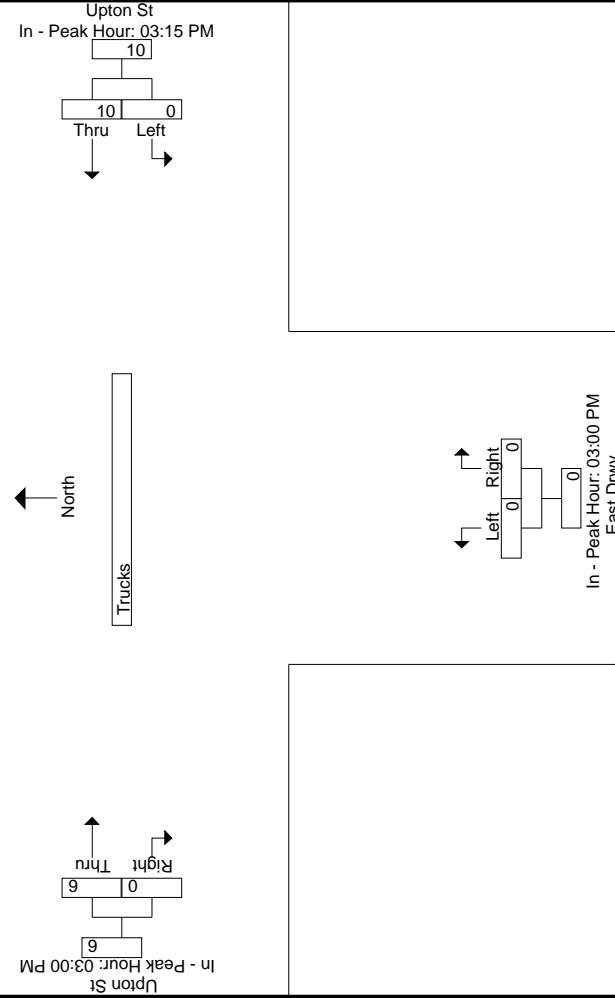
	03:15 PM	03:00 PM	03:00 PM	03:00 PM	03:00 PM
+0 mins.	0	2	0	0	3
+15 mins.	0	1	0	0	0
+30 mins.	0	3	0	0	2
+45 mins.	0	4	0	0	1
Total Volume	0	10	0	0	6

Accurate Counts

978-664-2565

	% App. Total	0	100	.625	.000	0	.000	.500	0
PHF	.000			.625					

Peak Hour Data



Accurate Counts

978-664-2565

N/S Street : Library East Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120001
 Site Code : 18120001
 Start Date : 1/30/2019
 Page No : 16

	Upton St From East			East Drwy From South			Groups Printed- Bikes Peds			Upton St From West			
	Start Time	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	1
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	1	0	1
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	1	1	0	0	1	2
04:30 PM	0	0	1	0	0	0	1	0	0	2	4	0	4
04:45 PM	0	0	1	0	0	0	0	0	0	1	2	0	2
Total	0	0	2	0	0	0	2	1	0	3	7	1	8
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	1	1	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	1	0	1
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	2	0	0	0	0	0	0	2	0	0	2

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
E/W Street: Upton Street
City/State : Grafton, MA
Weather : Clear

File Name : 18120001
Site Code : 18120001
Start Date : 1/30/2019
Page No : 17

Start Time	Upton St From East			East Drwy From South			Upton St From West		
	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds
06:30 PM	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0
Total	0	0	2	0	0	0	0	0	0
Grand Total	0	0	4	0	0	2	1	0	5
Apprich %	0	0		0	0		100	0	
Total %	0	0		0	0		100	0	

Groups Printed-	Bikes	Peds	Upton St From West	Excl. Total	Incl. Total	Int. Total
				0	0	0

Accurate Counts
978-664-2565

978-664-2565

N/S Street : Library East Driveway
E/W Street: Upton Street
City/State : Grafton, MA
Weather : Clear

File Name : 18120001
Site Code : 18120001
Start Date : 1/30/2019
Page No : 18

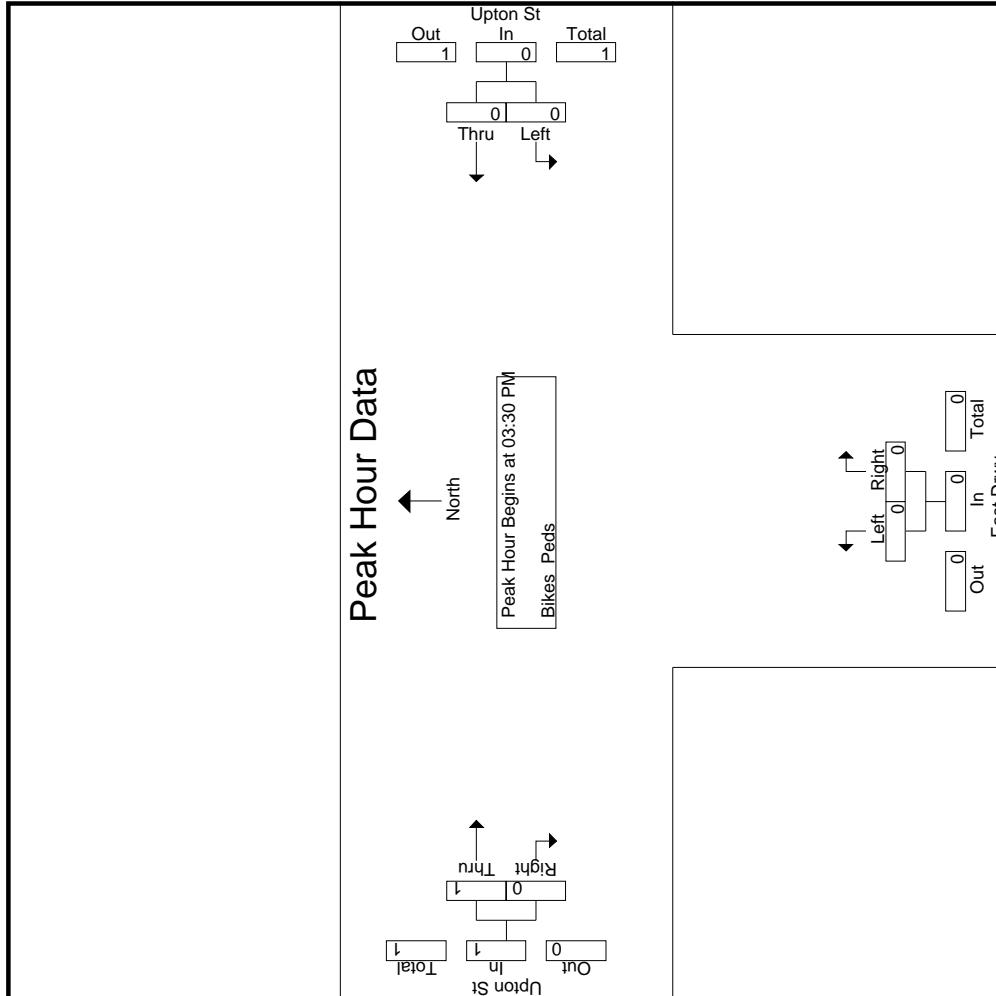
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1		Upton St From East				East Drwy From South				Upton St From West				
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% App. Total	0	0	0	0	0	0	0	0	0	100	0	0	1	1
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.250	

Accurate Counts

978-664-2565

N/S Street : Library East Driveway
E/W Street: Upton Street
City/State : Grafton, MA
Weather : Clear

File Name : 18120001
Site Code : 18120001
Start Date : 1/30/2019
Page No : 19



Peak Hour Analysis From 03:00 PM to 06:45 PM : Peak 1 of 1

Peak Hour for Each Approach Begins at:

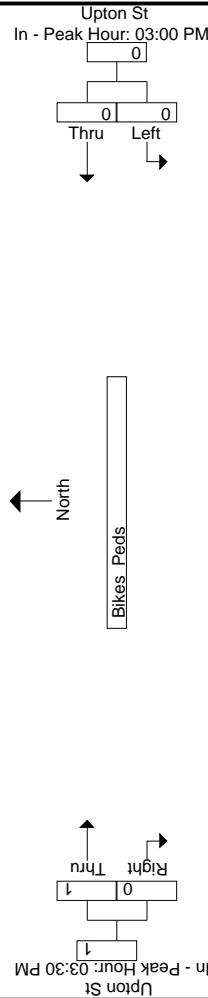
	03:00 PM	03:00 PM	03:30 PM
+0 mins.	0	0	0
+15 mins.	0	0	0
+30 mins.	0	0	0
+45 mins.	0	0	0
Total Volume	0	0	0

Accurate Counts

978-664-2565

% App. Total	0	0	0	0	100	0
PHF	.000	.000	.000	.000	.250	.250

Peak Hour Data



Accurate Counts

978-664-2565

N/S Street : Library West Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120002
 Site Code : 18120002
 Start Date : 1/30/2019
 Page No : 1

		Groups Printed-Cars				Upton St From West		Upton St From South		West Drwy From South		Upton St From East		Groups Printed-Cars	
Start Time		Left		Thru		Left		Right		Thru		Left		Right	
10:00 AM		2		0		1		1		0		0		4	8
10:15 AM		1		0		0		0		0		0		2	3
10:30 AM		0		0		3		1		0		0		0	4
10:45 AM		1		0		3		1		0		0		4	9
Total		4		0		7		3		0		0		10	24
11:00 AM		0		0		0		0		0		0		1	1
11:15 AM		2		0		1		0		0		0		2	5
11:30 AM		0		0		2		1		0		0		1	4
11:45 AM		0		0		0		0		0		0		3	3
Total		2		0		3		1		0		0		7	13
Grand Total		6		0		10		4		0		17		37	
Apprch %		100		0		71.4		28.6		0		100			
Total %		16.2		0		27		10.8		0		45.9			

Accurate Counts

978-664-2565

N/S Street : Library West Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120002
 Site Code : 18120002
 Start Date : 1/30/2019
 Page No : 2

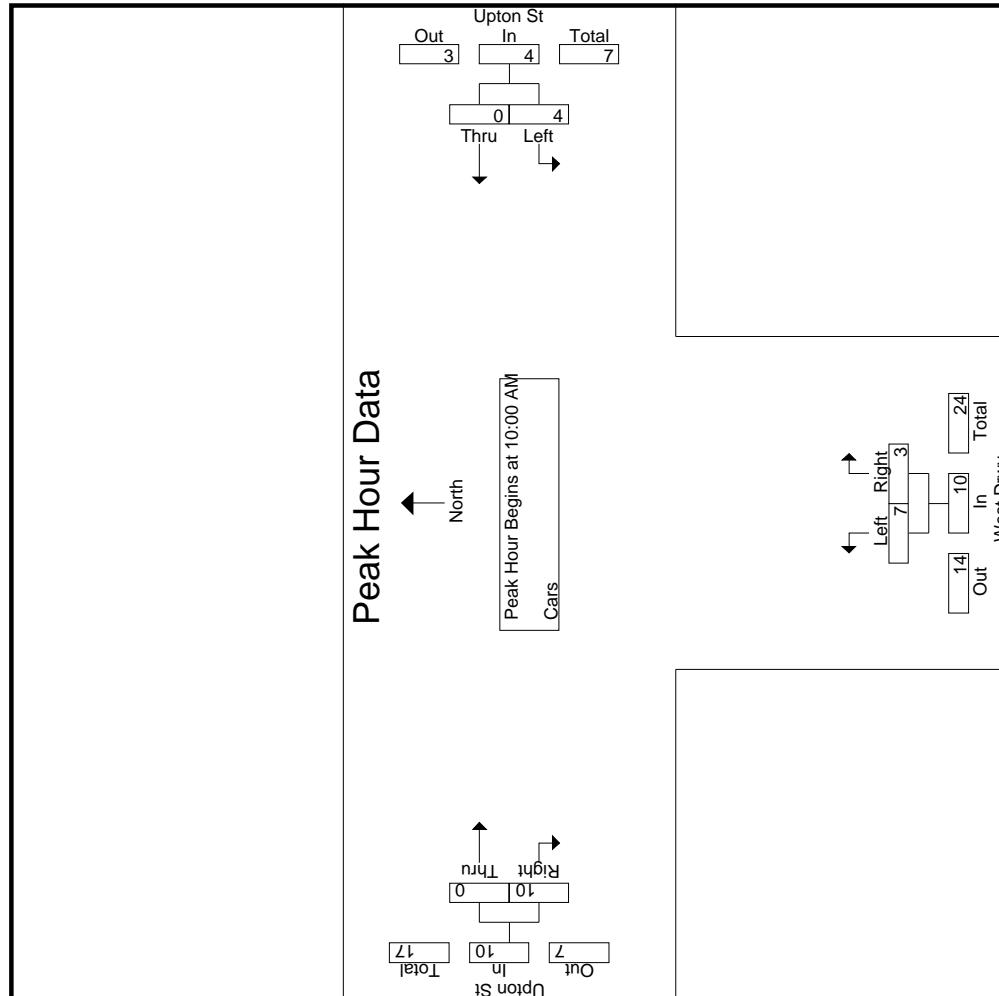
		Upton St			West Drwy			Upton St		
		From East			From South			From West		
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 11:45 AM - Peak 1 of 1										
10:00 AM	2	0	2	1	1	2	0	4	4	8
10:15 AM	1	0	1	0	0	0	0	2	2	3
10:30 AM	0	0	0	3	1	4	0	0	0	4
10:45 AM	1	0	1	3	1	4	0	4	4	9
Total Volume	4	0	4	7	3	10	0	10	10	24
% App. Total	100	0		70	30		0	100		
PHF	.500	.000	.500	.583	.750	.625	.000	.625	.625	.667

Accurate Counts

978-664-2565

N/S Street : Library West Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120002
 Site Code : 18120002
 Start Date : 1/30/2019
 Page No : 3



Peak Hour Analysis From 10:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

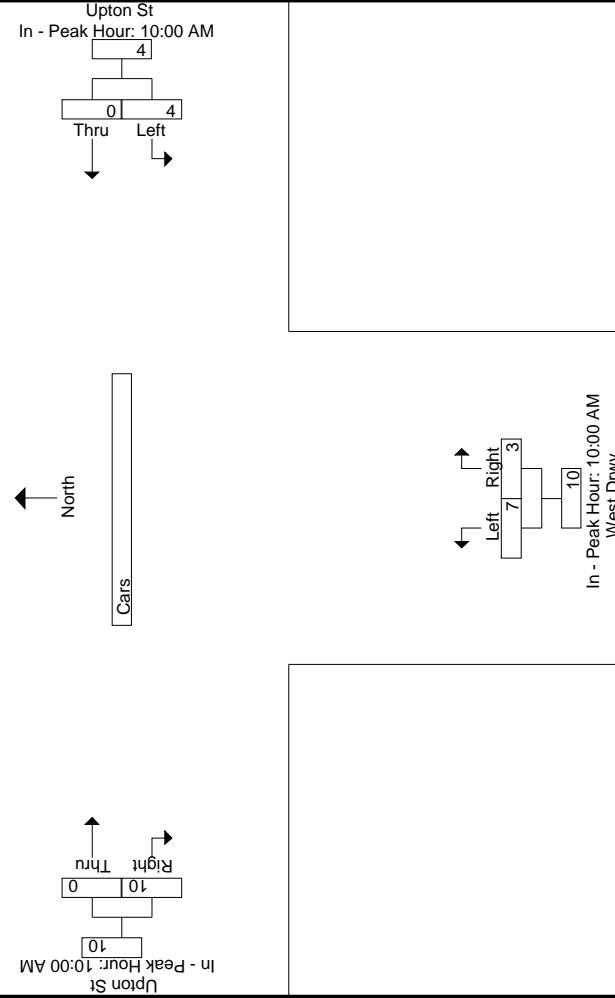
	10:00 AM	10:00 AM	10:00 AM	10:00 AM
+0 mins.	2	0	1	2
+15 mins.	1	0	0	0
+30 mins.	0	0	3	4
+45 mins.	1	0	1	4
Total Volume	4	0	4	10

Accurate Counts

978-664-2565

	% App. Total	100	0	70	30	.500	.583	.750	.625	0	100
PHF		.500	.000								.625

Peak Hour Data



Accurate Counts

978-664-2565

N/S Street : Library West Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120002
 Site Code : 18120002
 Start Date : 1/30/2019
 Page No : 1

Start Time	Upton St From East			Groups Printed-Cars Library Drwy From South			Upton St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	0	0	4	0	0	0	0	0	0	4
03:15 PM	1	0	0	0	0	0	1	0	1	2
03:30 PM	3	0	2	0	0	0	3	0	3	8
03:45 PM	0	0	2	0	0	0	3	0	3	5
Total	4	0	8	0	0	0	7	0	7	19
04:00 PM	1	0	2	0	0	0	0	0	0	3
04:15 PM	3	0	2	0	0	0	2	0	2	7
04:30 PM	2	0	4	2	0	0	1	0	1	9
04:45 PM	2	0	1	0	0	0	6	0	6	9
Total	8	0	9	2	0	0	9	0	9	28
05:00 PM	0	0	7	2	0	0	0	0	0	9
05:15 PM	0	0	4	0	0	0	3	0	3	7
05:30 PM	0	0	3	0	0	0	2	0	2	5
05:45 PM	1	0	1	0	0	0	2	0	2	4
Total	1	0	15	2	0	0	7	0	7	25
06:00 PM	0	0	2	0	0	0	3	0	3	5
06:15 PM	0	0	1	0	0	0	0	0	0	1
06:30 PM	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	1	0	1	1
Total	0	0	3	0	0	0	4	0	4	7
Grand Total	13	0	35	4	0	0	27	0	0	79
Apprich %	100	0	89.7	10.3	0	0	100	0	0	
Total %	16.5	0	44.3	5.1	0	0	34.2	0	0	

Accurate Counts

978-664-2565

N/S Street : Library West Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120002
 Site Code : 18120002
 Start Date : 1/30/2019
 Page No : 2

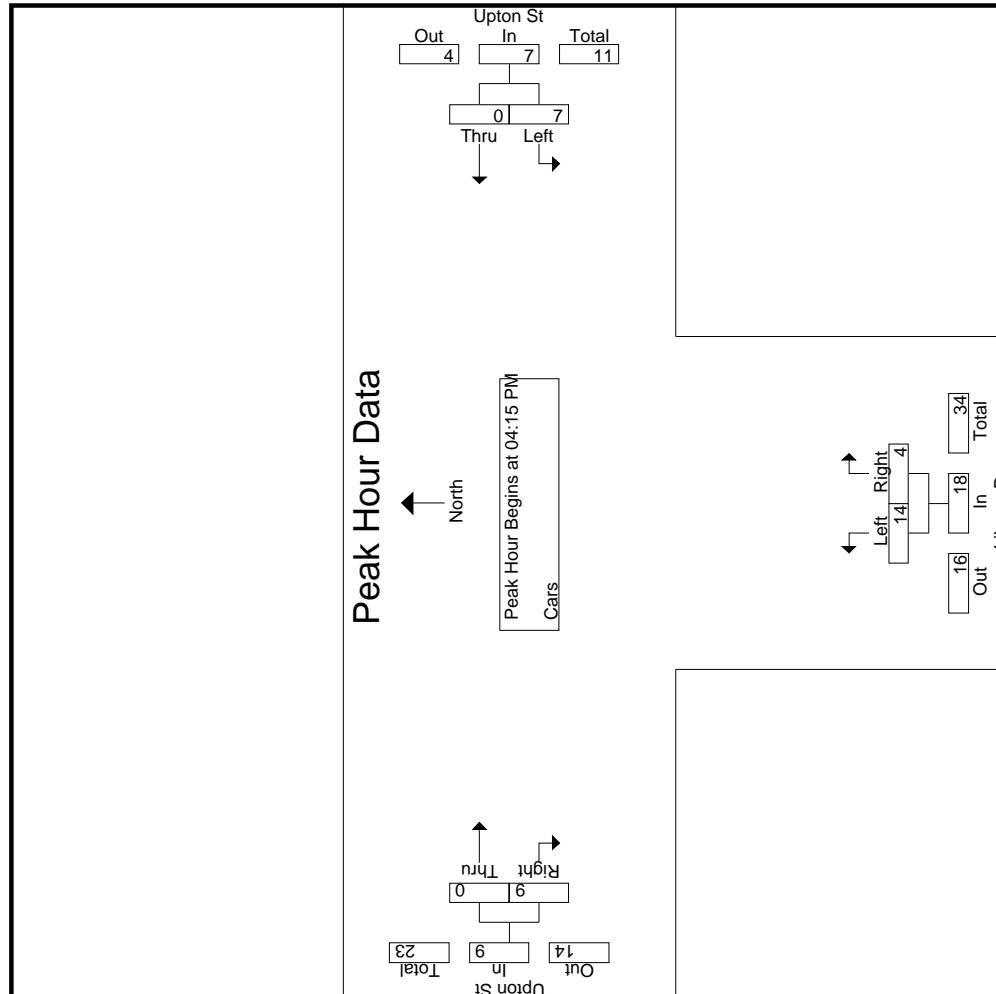
		Upton St From East			Library Drwy From South			Upton St From West		
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	3	0	3	2	0	2	0	2	2	7
04:30 PM	2	0	2	4	2	6	0	1	1	9
04:45 PM	2	0	2	1	0	1	0	6	6	9
05:00 PM	0	0	0	7	2	9	0	0	0	9
Total Volume	7	0	7	14	4	18	0	9	9	34
% App. Total	100	0	77.8	22.2	0	100	0	100	.375	.375
PHF	.583	.000	.583	.500	.500	.500	.000	.000	.944	.944

Accurate Counts

978-664-2565

N/S Street : Library West Driveway
 E/W Street: Upton Street
 City/State : Grafton, MA
 Weather : Clear

File Name : 18120002
 Site Code : 18120002
 Start Date : 1/30/2019
 Page No : 3



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

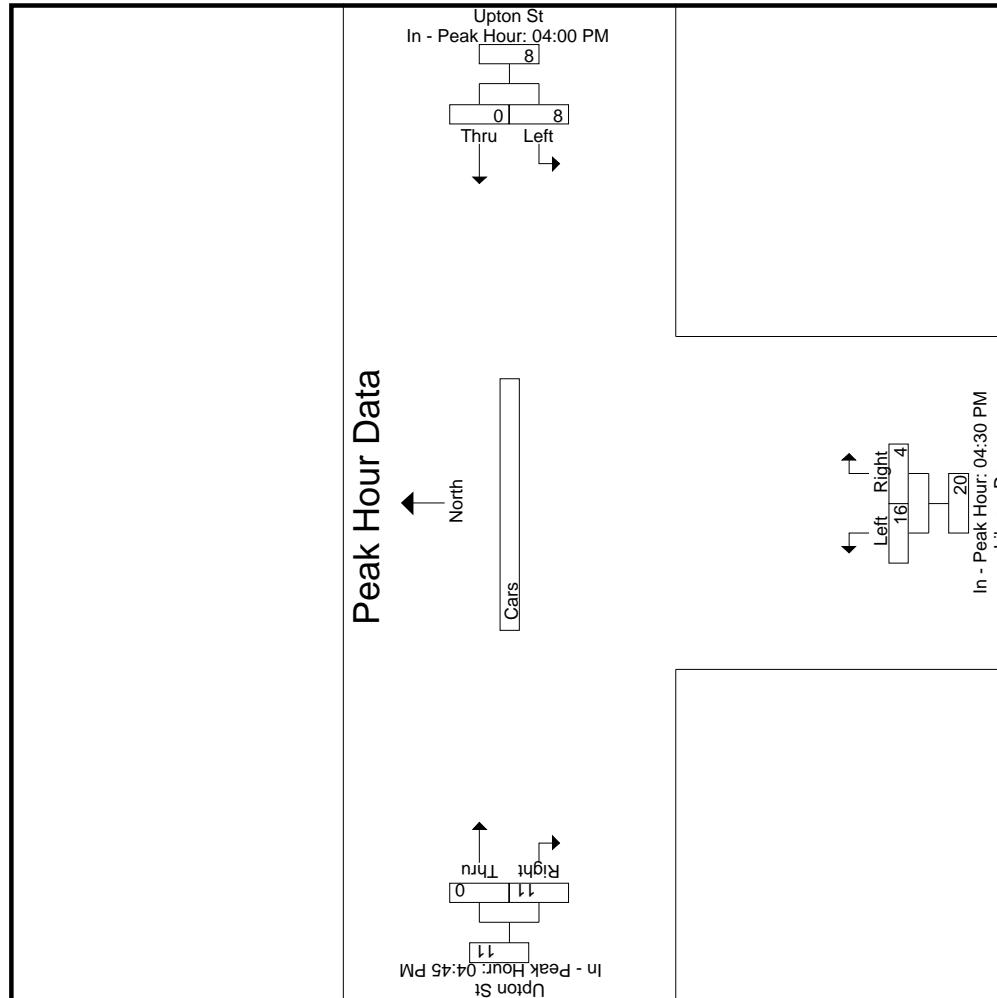
	04:00 PM	04:30 PM	04:45 PM
+0 mins.	1	4	6
+15 mins.	3	1	1
+30 mins.	2	2	2
+45 mins.	2	4	4
Total Volume	8	8	20
% App. Total	100	80	0
PHF	.667	.667	.556
	.000	.500	.000
			.458
			.458

Accurate Counts

978-664-2565

N/S Street : Library West Driveway
E/W Street: Upton Street
City/State : Grafton, MA
Weather : Clear

File Name : 18120002
Site Code : 18120002
Start Date : 1/30/2019
Page No : 4



Accurate Counts
978-664-2565

Page 1

Location : Upton Street
Location : East of Library Driveways
City/State: Grafton, MA

1812VOL1

Start Time	1/30/2019 Wed	EB		Hour Totals		WB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		9	44			10	47				
12:15		6	59			6	63				
12:30		4	54			3	40				
12:45		9	60	28	217	2	60	21	210	49	427
01:00		6	55			6	61				
01:15		2	65			5	60				
01:30		4	47			1	76				
01:45		4	43	16	210	20	66	32	263	48	473
02:00		2	89			4	65				
02:15		2	62			5	102				
02:30		5	87			5	103				
02:45		8	81	17	319	9	82	23	352	40	671
03:00		4	88			3	93				
03:15		4	71			2	105				
03:30		4	92			4	90				
03:45		5	89	17	340	4	93	13	381	30	721
04:00		5	83			7	91				
04:15		8	92			7	91				
04:30		5	86			10	94				
04:45		12	73	30	334	9	108	33	384	63	718
05:00		17	83			15	79				
05:15		19	88			18	104				
05:30		27	90			24	92				
05:45		25	79	88	340	29	107	86	382	174	722
06:00		32	61			25	76				
06:15		49	61			36	79				
06:30		56	58			56	44				
06:45		74	50	211	230	67	59	184	258	395	488
07:00		85	64			74	37				
07:15		85	45			83	37				
07:30		79	51			81	51				
07:45		73	42	322	202	103	43	341	168	663	370
08:00		46	48			87	34				
08:15		53	35			100	25				
08:30		59	14			83	29				
08:45		47	19	205	116	110	25	380	113	585	229
09:00		58	25			100	17				
09:15		62	26			77	20				
09:30		46	13			90	17				
09:45		72	14	238	78	61	6	328	60	566	138
10:00		59	16			63	18				
10:15		49	16			71	20				
10:30		47	7			72	5				
10:45		56	15	211	54	61	11	267	54	478	108
11:00		50	21			39	6				
11:15		57	9			65	14				
11:30		50	4			58	10				
11:45		49	7	206	41	52	7	214	37	420	78
Total		1589	2481			1922	2662			3511	5143
Percent		39.0%	61.0%			41.9%	58.1%			40.6%	59.4%

Accurate Counts
978-664-2565

Page 2

Location : Upton Street
 Location : East of Library Driveways
 City/State: Grafton, MA

1812VOL1

Start Time	1/31/2019 Thu	EB		Hour Totals		WB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		2	56			6	58				
12:15		4	38			10	45				
12:30		2	78			3	72				
12:45		4	74	12	246	1	55	20	230	32	476
01:00		5	71			6	70				
01:15		3	57			2	69				
01:30		3	59			1	74				
01:45		2	62	13	249	0	67	9	280	22	529
02:00		2	61			0	72				
02:15		3	80			4	85				
02:30		3	74			4	73				
02:45		2	93	10	308	4	73	12	303	22	611
03:00		2	90			3	87				
03:15		5	82			2	111				
03:30		1	73			5	118				
03:45		6	85	14	330	5	84	15	400	29	730
04:00		6	91			7	103				
04:15		4	64			6	94				
04:30		5	83			5	98				
04:45		4	70	19	308	10	102	28	397	47	705
05:00		13	89			15	80				
05:15		14	86			16	93				
05:30		31	79			24	89				
05:45		36	79	94	333	31	90	86	352	180	685
06:00		28	69			26	82				
06:15		37	66			34	72				
06:30		60	60			49	59				
06:45		58	52	183	247	91	56	200	269	383	516
07:00		54	45			110	43				
07:15		54	48			121	43				
07:30		71	39			103	39				
07:45		62	50	241	182	111	45	445	170	686	352
08:00		71	52			100	16				
08:15		90	25			91	26				
08:30		79	40			87	21				
08:45		86	22	326	139	79	36	357	99	683	238
09:00		72	34			69	18				
09:15		70	36			71	24				
09:30		61	19			82	23				
09:45		50	16	253	105	55	17	277	82	530	187
10:00		60	15			79	19				
10:15		30	19			56	12				
10:30		54	15			78	13				
10:45		46	14	190	63	58	7	271	51	461	114
11:00		33	8			63	5				
11:15		46	7			51	9				
11:30		46	7			78	12				
11:45		51	5	176	27	51	8	243	34	419	61
Total		1531	2537			1963	2667			3494	5204
Percent		37.6%	62.4%			42.4%	57.6%			40.2%	59.8%
Grand Total		3120	5018			3885	5329			7005	10347
Percent		38.3%	61.7%			42.2%	57.8%			40.4%	59.6%

ADT ADT 8,676 AADT 8,676

Location : Upton Street
Location : East of Library Driveways
City/State: Grafton, MA

Start Time	1/28/2019												Week Average												
	EB			WB			EB			WB			EB			WB			EB			WB			
12:00 AM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12:00 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Lane Day	0	0	0	0	0	0	4070	4584	4068	4630	0	0	0	0	0	0	0	0	0	0	0	4071	4605		
AM Peak Vol.	-	-	-	-	-	-	07:00	08:00	08:00	07:00	-	-	-	-	-	-	-	-	-	-	-	07:00	07:00		
PM Peak Vol.	-	-	-	-	-	-	15:00	16:00	17:00	15:00	-	-	-	-	-	-	-	-	-	-	-	17:00	15:00		

Comb.
Total

ADT 8,676 AADT 8,676

8676 0
8698 0

Accurate Counts
978-664-2565

Location : Upton Street
Location : East of Library Driveways
City/State: Grafton, MA

EB	Start Time	EB												Total		
		1	4	7	10	13	16	19	22	25	28	31	34	37	40	
		3	6	9	12	15	18	21	24	27	30	33	36	39	999	Total
	01/30/19	0	0	0	0	0	0	8	7	5	1	0	0	0	0	28
01:00	0	0	0	0	0	0	1	2	5	4	2	0	0	0	0	16
02:00	0	0	0	1	6	3	4	0	0	1	1	0	0	0	0	17
03:00	0	0	0	0	0	0	0	2	2	7	3	3	0	0	0	17
04:00	0	0	0	0	2	2	3	5	4	7	5	2	0	0	0	30
05:00	0	0	0	0	0	2	3	8	22	24	20	6	1	2	0	88
06:00	0	0	0	1	2	1	4	10	35	57	76	23	2	0	0	211
07:00	0	0	1	3	9	8	8	17	59	80	100	40	5	0	0	322
08:00	0	0	1	0	1	4	4	14	43	50	52	34	5	1	0	205
09:00	0	0	3	1	4	4	4	10	31	55	90	33	7	0	0	238
10:00	0	0	0	2	1	5	6	3	19	61	66	33	14	1	1	211
11:00	0	0	0	0	0	1	4	10	27	58	68	29	9	0	0	206
12 PM	0	0	0	2	5	1	3	8	23	57	60	46	10	2	0	217
13:00	0	0	0	0	4	1	4	8	35	56	62	33	6	0	1	210
14:00	0	0	0	3	6	7	14	12	37	87	84	51	15	3	0	319
15:00	0	0	0	3	4	3	0	10	31	95	112	62	15	3	2	340
16:00	0	0	0	0	1	2	7	8	29	95	113	58	20	0	1	334
17:00	0	0	0	0	0	6	4	8	42	108	102	51	10	3	0	340
18:00	0	0	0	0	9	9	13	35	53	66	32	12	0	1	0	230
19:00	0	0	0	0	1	2	7	29	60	61	32	10	0	0	0	202
20:00	0	0	0	0	1	0	4	21	28	38	16	5	3	0	0	116
21:00	0	0	0	0	1	1	1	3	18	19	27	6	2	0	0	78
22:00	0	0	0	0	0	1	3	4	17	47	14	9	1	0	0	54
23:00	0	0	0	15	51	64	115	234	637	1117	10	6	3	0	0	41
Total	0	0	0	15	51	64	115	234	637	1117	10	6	3	0	0	4070

15th Percentile :	21 MPH	Mean Speed(Average) :	26 MPH
50th Percentile :	26 MPH	10 MPH Pace Speed :	22-31 MPH
85th Percentile :	30 MPH	Number in Pace :	3080
95th Percentile :	32 MPH	Percent in Pace :	75.7%
		# of Vehicles > 20 MPH :	693
		# of Vehicles > 30 MPH :	17.0%

Location : Upton Street
 Location : East of Library Driveways
 City/State: Grafton, MA

EB Start Time 1 4 7 10 13 16 19 22 25 28 31 34 37 40
 3 6 9 12 15 18 21 24 27 30 33 36 39 999 Total

01/31/19	0	0	0	0	0	0	0	1	2	4	1	0	0	0	12
01:00	0	0	0	0	0	0	0	1	2	3	5	2	0	0	13
02:00	0	0	0	0	0	0	0	1	1	3	3	1	0	1	10
03:00	0	0	0	0	0	0	0	2	2	7	2	1	0	0	14
04:00	0	0	0	0	0	0	0	0	4	5	5	4	1	0	19
05:00	0	0	0	3	0	0	1	6	19	23	31	8	2	1	0
06:00	0	0	1	0	0	1	1	6	30	56	61	21	4	2	0
07:00	0	0	1	5	5	9	17	37	62	60	42	3	0	0	241
08:00	0	0	5	10	2	10	17	64	79	93	40	4	2	0	326
09:00	0	0	1	2	4	5	10	25	51	89	47	17	2	0	253
10:00	0	0	1	3	1	2	12	27	40	55	37	10	2	0	190
11:00	0	0	2	4	3	4	9	21	36	59	31	6	1	0	176
12 PM	0	0	1	2	1	4	10	25	75	77	38	12	1	0	246
13:00	0	0	0	1	0	2	13	31	59	79	49	14	1	0	249
14:00	0	0	0	7	13	4	14	37	79	88	47	15	3	1	308
15:00	0	0	1	4	3	3	15	48	87	102	51	15	1	0	330
16:00	0	0	0	9	8	7	9	40	78	90	55	11	1	0	308
17:00	0	0	1	3	3	9	16	53	108	84	46	10	0	0	333
18:00	0	0	0	1	0	4	21	44	65	68	30	13	0	1	247
19:00	0	0	0	0	1	3	4	29	48	62	27	8	0	0	182
20:00	0	0	0	2	2	1	8	23	33	42	20	7	0	1	139
21:00	0	0	0	0	0	2	3	15	23	36	22	3	1	0	105
22:00	0	0	2	4	1	1	3	8	13	16	11	2	2	0	63
23:00	0	0	0	2	0	0	0	2	8	10	4	0	0	1	27
Total	0	0	19	59	48	72	198	589	1045	1221	635	157	21	4	40683

Daily

15th Percentile : 22 MPH
 50th Percentile : 27 MPH
 85th Percentile : 30 MPH
 95th Percentile : 32 MPH

Mean Speed(Average) : 27 MPH
 10 MPH Pace Speed : 27 MPH
 Number in Pace : 3097
 Percent in Pace : 76.1%
 Number of Vehicles > 30 MPH : 817
 Percent of Vehicles > 30 MPH : 20.1%

Grand Total	0	0	34	110	112	187	432	1226	2163	2364	1180	285	36	9	8138
Overall	15th Percentile :	21 MPH	50th Percentile :	26 MPH	85th Percentile :	30 MPH	95th Percentile :	32 MPH							

Mean Speed(Average) : 27 MPH
 10 MPH Pace Speed : 22-31 MPH
 Number in Pace : 6146
 Percent in Pace : 75.5%
 Number of Vehicles > 30 MPH : 1510
 Percent of Vehicles > 30 MPH : 18.6%

Location : Upton Street
Location : East of Library Driveways
City/State: Grafton, MA

WB Start Time 1 4 7 10 13 16 19 22 25 28 31 34 37 40 Total
01/30/19 3 6 9 12 15 18 21 24 27 30 33 36 39 40 21
01:00 0 0 0 0 0 0 0 4 6 8 2 1 0 0 0 21
02:00 0 0 0 0 1 5 3 5 1 5 4 1 1 0 0 32
03:00 0 0 0 0 0 0 0 0 2 2 3 3 0 0 0 23
04:00 0 0 0 0 2 0 0 10 3 7 5 5 1 0 0 13
05:00 0 0 0 0 0 1 4 3 13 21 25 15 4 0 0 33
06:00 0 0 0 0 3 5 2 7 17 48 52 31 10 8 1 184
07:00 0 0 0 0 0 0 4 12 50 74 99 70 26 5 1 341
08:00 0 0 0 0 6 6 6 21 60 78 115 72 18 3 1 380
09:00 0 0 0 0 0 0 6 12 54 62 91 59 34 8 2 328
10:00 0 0 0 0 2 2 12 19 18 53 59 59 26 13 4 267
11:00 0 0 0 0 1 2 2 20 27 44 55 34 17 11 1 214
12 PM 0 0 0 1 1 3 14 10 26 44 50 34 21 3 3 210
13:00 0 0 0 1 0 5 5 11 29 61 69 51 21 5 5 263
14:00 0 0 0 1 7 24 21 37 38 66 86 43 25 4 0 352
15:00 0 0 0 0 0 4 1 14 37 102 105 69 34 14 1 381
16:00 0 0 0 0 2 8 10 9 48 93 126 56 24 6 2 384
17:00 0 0 1 4 4 11 13 56 113 103 60 14 2 1 382
18:00 0 0 0 4 3 22 43 71 66 37 10 2 0 0 0 258
19:00 0 0 0 0 0 2 6 25 56 44 24 8 3 0 0 0 168
20:00 0 0 0 0 0 0 0 7 19 44 27 12 3 1 0 0 113
21:00 0 0 0 1 0 0 2 11 19 18 7 2 0 0 0 60
22:00 0 0 1 0 1 0 2 10 13 9 15 2 1 0 0 0 54
23:00 0 0 0 0 0 0 0 2 1 6 10 12 5 1 0 0 0 37
Total 0 0 5 29 81 162 321 707 1051 1155 685 283 83 22 4584

Daily

15th Percentile : 21 MPH

50th Percentile :

26 MPH

85th Percentile :

31 MPH

95th Percentile :

34 MPH

Mean Speed(Average) : 27 MPH

10 MPH Pace Speed :

22-31 MPH

Number in Pace :

3141

Percent in Pace :

68.5%

Number of Vehicles > 30 MPH :

1073

Percent of Vehicles > 30 MPH :

23.4%

1812SPD1

Location : Upton Street
Location : East of Library Driveways
City/State: Grafton, MA

1812SPD1

WB	Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	40	Total
	01/31/19	3	6	9	12	15	18	21	24	27	30	33	36	39	999	20
01:00	0	0	0	0	0	0	0	1	0	1	9	3	5	0	1	9
02:00	0	0	0	0	0	0	0	0	2	2	3	1	1	0	0	9
03:00	0	0	0	0	0	0	0	1	1	4	3	2	1	0	0	12
04:00	0	0	0	0	0	0	0	1	1	0	7	5	0	1	0	15
05:00	0	0	0	0	0	0	0	1	2	5	6	10	3	0	0	28
06:00	0	0	0	0	0	1	1	1	10	25	58	62	35	5	2	86
07:00	0	0	0	0	3	4	10	35	54	99	141	70	23	5	1	200
08:00	0	0	0	0	1	2	7	16	39	92	97	69	29	4	1	445
09:00	0	0	0	0	1	3	3	22	23	52	74	51	28	18	2	357
10:00	0	0	0	0	1	2	8	21	32	68	65	41	21	10	2	277
11:00	0	0	0	0	2	8	11	18	29	42	47	52	24	7	3	243
12 PM	0	0	0	0	1	3	6	15	34	52	60	35	20	3	1	230
13:00	0	0	0	1	2	3	3	20	39	61	56	66	22	5	2	280
14:00	0	0	0	0	1	4	4	26	42	59	68	66	23	10	0	303
15:00	0	0	0	0	4	4	9	40	65	102	94	64	15	0	3	400
16:00	0	0	0	0	2	9	7	14	50	93	130	68	19	5	0	397
17:00	0	0	0	0	3	5	8	21	50	94	108	43	18	2	0	352
18:00	0	0	0	1	6	1	3	18	51	76	62	34	15	2	0	269
19:00	0	0	0	0	3	6	8	6	21	46	39	31	7	2	1	170
20:00	0	0	0	0	0	0	1	1	2	7	20	34	24	8	2	99
21:00	0	0	0	1	1	1	4	5	11	20	20	8	7	2	2	82
22:00	0	0	0	0	1	6	1	1	6	8	10	12	3	3	0	51
23:00	0	0	0	0	0	0	1	0	0	4	9	8	7	1	0	34
Total	0	0	3	33	65	99	311	607	1103	1220	792	295	84	18	4630	9214
Daily																
Overall																
Mean Speed(Average) :																
10 MPH Pace Speed :																
Number in Pace :																
Percent in Pace :																
Number of Vehicles > 30 MPH :																
Percent of Vehicles > 30 MPH :																
Grand Total	0	0	8	62	146	261	632	1314	2154	2375	1477	578	167	40	40	9214

Accurate Counts
978-664-2565

Location : Upton Street
Location : East of Library Driveways
City/State: Grafton, MA

EB, WB	Start Time	1	4	7	10	13	16	19	22	25	28	31	34	37	40	Total	
	3	6	9	12	15	18	21	24	27	30	33	36	39	40	999	49	
01/30/19	0	0	0	0	0	0	12	13	15	7	2	0	0	0	0	49	
01:00	0	0	0	0	1	7	8	10	8	3	1	0	0	0	0	48	
02:00	0	0	0	1	7	8	7	5	2	6	4	0	0	0	0	40	
03:00	0	0	0	0	0	0	2	4	11	5	6	1	1	0	0	30	
04:00	0	0	0	0	4	2	13	8	11	12	10	2	0	1	0	63	
05:00	0	0	0	0	0	3	7	11	35	45	45	21	5	2	0	174	
06:00	0	0	0	1	5	6	6	17	52	105	128	54	12	8	1	395	
07:00	0	0	1	3	9	12	29	109	154	199	110	31	5	1	1	663	
08:00	0	0	1	0	7	10	35	103	128	167	106	23	4	1	1	585	
09:00	0	0	0	3	1	4	10	22	85	117	181	92	41	8	2	566	
10:00	0	0	0	2	3	7	18	22	37	114	125	92	40	13	5	478	
11:00	0	0	0	0	1	3	6	30	54	102	123	63	26	11	1	420	
12 PM	0	0	0	3	6	4	17	18	49	101	110	80	31	5	3	427	
13:00	0	0	0	1	4	6	9	19	64	117	131	84	27	5	6	473	
14:00	0	0	0	4	13	31	35	49	75	153	170	94	40	7	0	671	
15:00	0	0	0	0	3	8	4	24	68	197	217	131	49	17	3	721	
16:00	0	0	0	0	3	10	17	17	77	188	239	114	44	6	3	718	
17:00	0	0	0	1	10	10	15	21	98	221	205	111	24	5	1	722	
18:00	0	0	0	0	13	12	35	78	124	132	69	22	2	1	0	488	
19:00	0	0	0	1	4	13	54	116	105	56	18	3	0	0	0	370	
20:00	0	0	0	0	1	0	11	40	72	65	28	8	4	0	0	229	
21:00	0	0	0	1	1	3	14	37	37	34	8	2	0	0	0	138	
22:00	0	0	0	1	0	2	5	14	30	23	24	7	2	0	0	108	
23:00	0	0	0	0	0	1	2	1	1	30	27	22	11	4	0	0	78
Total	0	0	20	80	145	277	555	1344	2169	2298	1230	411	98	27	27	8654	

15th Percentile :	21 MPH	Mean Speed(Average) :	27 MPH
50th Percentile :	26 MPH	10 MPH Pace Speed :	22-31 MPH
85th Percentile :	31 MPH	Number in Pace :	6221
95th Percentile :	33 MPH	Percent in MPH :	71.9%
		or of Vehicles > 30 MPH :	1766
		or of Vehicles > 30 MPH :	20.4%

Location : Upton Street
 Location : East of Library Driveways
 City/State: Grafton, MA

EB_WB Start Time 1 4 7 10 13 16 19 22 25 28 31 34 37 40
 3 6 9 12 15 18 21 24 27 30 33 36 39 999 Total

01/31/19	0	0	0	0	0	0	1	1	3	13	7	6	0	1	0	32	
01:00	0	0	0	0	0	0	0	0	3	4	6	6	3	0	0	22	
02:00	0	0	0	0	0	0	0	0	3	5	5	5	2	0	1	22	
03:00	0	0	0	0	0	0	0	1	3	2	14	7	1	0	0	29	
04:00	0	0	0	0	0	0	1	1	2	9	11	15	7	1	0	47	
05:00	0	0	0	0	0	0	0	0	3	20	32	47	50	19	5	1	0
06:00	0	0	0	1	1	2	2	16	55	114	123	56	9	4	4	0	
07:00	0	0	0	1	8	9	19	52	91	161	201	112	26	5	1	686	
08:00	0	0	5	11	4	17	33	103	171	190	109	33	6	1	1	683	
09:00	0	0	0	1	3	7	8	32	48	103	163	98	45	20	2	530	
10:00	0	0	0	1	4	3	10	33	59	108	120	78	31	12	2	461	
11:00	0	0	0	2	6	11	15	27	50	78	111	78	30	8	3	419	
12 PM	0	0	0	1	3	4	10	25	59	127	137	73	32	4	1	476	
13:00	0	0	0	1	3	3	5	33	70	120	135	115	36	6	2	529	
14:00	0	0	0	0	8	17	8	40	79	138	156	113	38	13	1	611	
15:00	0	0	0	1	8	7	12	55	113	189	196	115	30	1	3	730	
16:00	0	0	0	1	17	14	23	90	171	220	123	30	6	0	0	705	
17:00	0	0	0	1	6	8	17	37	103	202	192	89	28	2	0	685	
18:00	0	0	0	1	7	1	7	39	95	141	130	64	28	2	1	516	
19:00	0	0	0	0	3	7	11	10	50	94	101	58	15	2	1	352	
20:00	0	0	0	0	2	3	2	10	30	53	76	44	15	2	1	238	
21:00	0	0	0	1	1	1	6	8	26	43	56	30	10	3	2	187	
22:00	0	0	0	2	5	7	2	4	14	21	26	23	5	5	0	114	
23:00	0	0	0	0	2	1	0	0	6	17	18	11	4	1	1	61	
Total	0	0	22	92	113	171	509	1196	2148	2441	1427	452	105	22	8698		

Daily

15th Percentile : 21 MPH

50th Percentile : 27 MPH

85th Percentile : 31 MPH

95th Percentile : 33 MPH

Mean Speed(Average) : 27 MPH

10 MPH Pace Speed : 24-33 MPH

Number in Pace : 6415

Percent in Pace : 73.8%

Number of Vehicles > 30 MPH : 2006

Percent of Vehicles > 30 MPH : 23.1%

Grand Total 0 0 0 42 172 258 448 1064 2540 4317 4739 2657 863 203 49 17352

Overall

15th Percentile : 21 MPH

50th Percentile : 26 MPH

85th Percentile : 31 MPH

95th Percentile : 33 MPH

Mean Speed(Average) : 27 MPH

10 MPH Pace Speed : 24-33 MPH

Number in Pace : 12560

Percent in Pace : 72.4%

Number of Vehicles > 30 MPH : 3772

Percent of Vehicles > 30 MPH : 21.7%